



INSTRUCTION BOOK

FOR W&T EQUIPMENT

WALLACE & TIERNAN
 **PENWALT**

EQUIPMENT ■ CHEMICALS
HEALTH PRODUCTS

PLEASE NOTE: THIS EQUIPMENT HAS BEEN DESIGNED TO PROVIDE RELIABLE SERVICE; HOWEVER, BEFORE ATTEMPTING TO INSTALL, OPERATE, OR SERVICE THE EQUIPMENT, THIS INSTRUCTION BOOK MUST BE READ, UNDERSTOOD, AND OBSERVED. FAILURE TO DO SO CAN RESULT IN IMPROPER OPERATION WITH POSSIBLY HAZARDOUS CONSEQUENCES.

ORDERING INFORMATION

In order for us to fill your order immediately and correctly, please order material by description and part number, as shown in this book. Also, please specify the serial number of the equipment on which the parts will be installed.

GUARANTEE AND WARRANTY

Seller warrants for a period of one year after shipment that the equipment or material of its manufacture is free from defects in workmanship and materials, but its liability for any breach of this warranty is limited to the replacement f.o.b. shipping point of the defective parts. No action for breach of warranty shall be brought more than one year after the cause of action has accrued. Corrosion or other decomposition by chemical action is specifically excluded as a defect covered hereunder, except that this exclusion shall not apply to chlorination equipment. **SELLER MAKES NO OTHER WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR OF FITNESS OF THE MATERIAL OR EQUIPMENT FOR ANY PARTICULAR PURPOSE EVEN IF THAT PURPOSE IS KNOWN TO SELLER.** Seller shall not be liable for any incidental or consequential damages arising from the sale or use of the equipment or material. Where circumstances permit, Seller will invoke, for the benefit of Buyer, the guarantee or warranty of Seller's vendor for equipment or materials furnished hereunder. In the event the equipment or material furnished hereunder shall be used in any capacity in connection with any nuclear facility, Buyer agrees to hold Seller harmless from all claims for damages arising out of injury or death to any person or damage to or destruction of the nuclear facility, or any other property, or loss of use of any such property, whether such person or property is on or off the installation or activity site for which the equipment or material furnished hereunder is destined and whether such damage, loss, destruction or loss of use, injury or death results directly or indirectly from a nuclear incident or from any other cause.

Statements and instructions set forth herein are based upon the best information and practices known to Wallace & Tiernan Division, PENNWALT Corporation but it should not be assumed that every acceptable safety procedure is contained herein. Of necessity this company cannot guarantee that actions in accordance with such statements and instructions will result in the complete elimination of hazards and it assumes no liability for accidents that may occur.

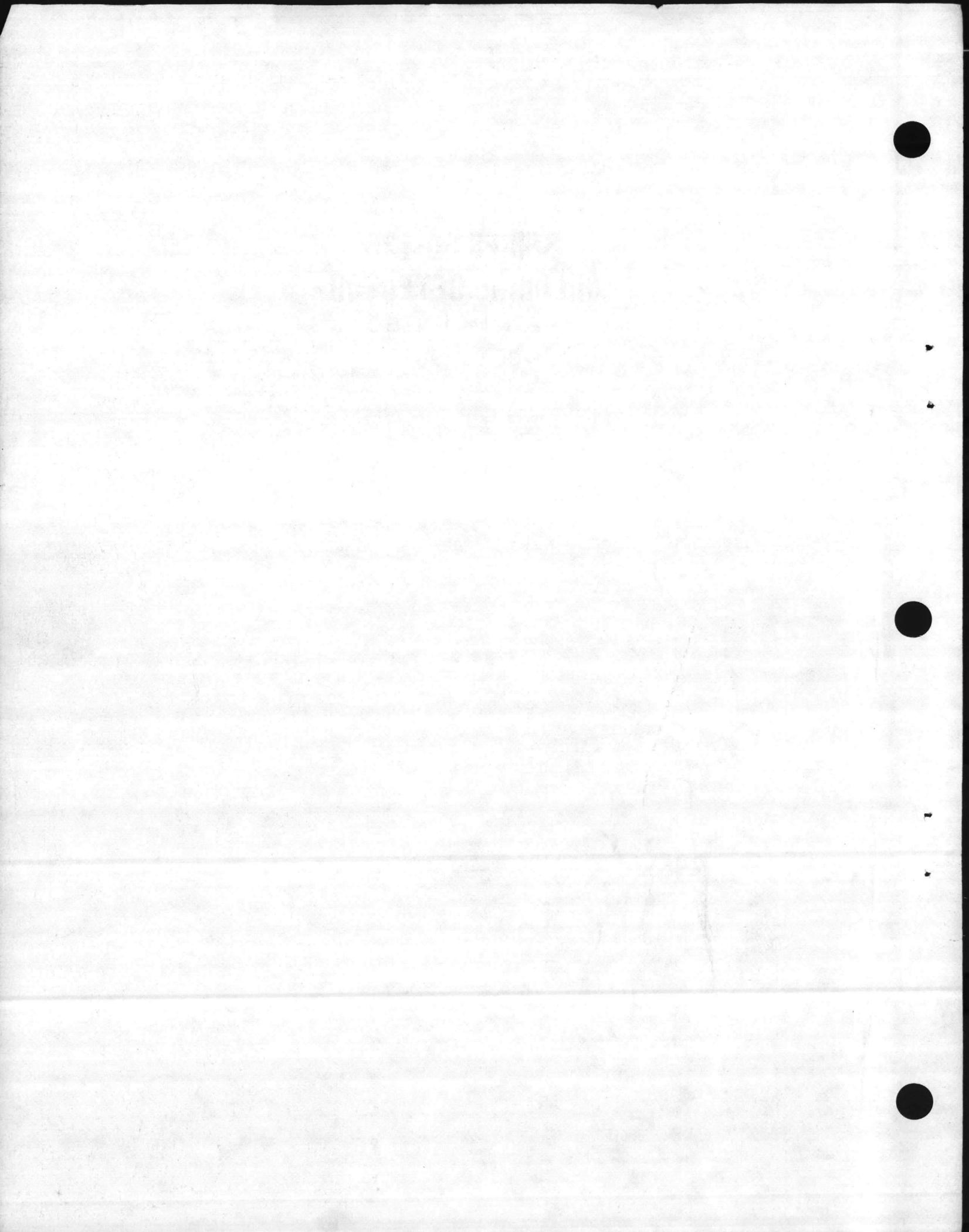
WALLACE & TIERNAN DIVISION
PENNWALT CORPORATION
25 MAIN STREET
BELLEVILLE, NEW JERSEY 07109

WALLACE & TIERNAN
 **PENNWALT**
EQUIPMENT ■ CHEMICALS
HEALTH PRODUCTS

SERIES 50-125
CHLORINE DETECTOR
WALL MOUNTED

BOOK NO. WCC 50.125

6-85



WALLACE & TIERNAN PRODUCTS

CHLORINATION EQUIPMENT

V-notch Chlorinators from low-capacity, manual units to modular, multi-component systems for the automatic chlorination of potable water, municipal and industrial wastes, cooling water. Systems are available mounted on steel skids and in fiber glass heated and ventilated houses. W&T Hypo-chlorinators in a variety of types and capacities. OSEC Systems for on-site electrolytic generation of hypochlorite from seawater or brine solution. Other equipment applies lime slurries of up to 28% by weight, alum or polymers for flocculation, ammonia for chloramine disinfection, sulfur dioxide for dechlorination, chlorine dioxide for disinfection.

VAREA-METERS® (rotameters) AND PURGE METERS

Glass-tube purge meters feature one-piece stainless or KYNAR® vinylidene fluoride resin frames. Glass-tube Varea-meter is available in a variety of wetted materials. Metal-tube, PVC-tube, or TFE-lined Varea-meters offer a choice for high temperature and pressure metering of corrosive fluids. The latter available with flow switch and/or pneumatic or electronic flow rate transmitters. W&T Armored Purge Meters include an all-stainless model for high temperatures and pressures and the state-of-the-art ARMA-VIEW™ Meter with highly visible dial readout and convenient in-line servicing.

METERING PUMPS

W&T Plunger Pumps for high pressure applications include Series 150A with single or double liquid ends and Series 200A in simplex, duplex, or triplex. CHEMFRAM™ Piston-diaphragm Pumps are also available in simplex, duplex, and triplex. They feature a double TFE diaphragm hydraulically actuated and balanced for maximum operating life and chemical resistance, minimum wear. W&T's tubular-diaphragm pumps are the CHEMTUBE® Pump for industrial processes and the ENVIROTUBE™ Pump for water and waste treatment. They feature state-of-the-art tubular-diaphragm technology for reliable chemical metering. 44 Series Diaphragm Pumps give precise metering to 5000 gpd; feature pumping heads for mild chemicals, aggressive chemicals and slurries. W&T CHEMPULSE™ Pumps are rugged and economical solenoid pumps featuring state-of-the-art electronics, pumping heads for mild to aggressive chemicals, and capacities of 1, 5, and 10 gph. W&T Metering Pumps offer manual or automatic control and a selection of accessories such as: Pressure-relief, backpressure, and anti-syphon valves; main connections; solution tanks; and pump-tank chemical metering systems.

DRY CHEMICAL FEEDERS AND WEIGHERS

The W&T Mechanical Weighbelt Feeder is a low cost, durable unit available with manual feed rate control, rotary-inlet control for floodable materials, and variable-speed control. The latter can have digital readout of feedrate and automatic control by mA input. W&T Digital Weighbelt Feeders feature manual-vertical-gate and rotary-inlet models. They come in electrical arrangements suitable for general purpose locations with others FM approved for many types of electrically hazardous locations. Control input and output, frequency 4-20mA; accuracies to 0.25% of set rate; continuous operating ranges to 200:1. This feeder features programmable microprocessor control and a library of software programs for a wide range of applications.

W&T Digital Weighbelt Meters generate a useful frequency 4-20 mA output proportional to a wild flow of material through the meter.

ISCAFLO® Continuous Weighing and Batching Systems are state-of-the-art solids handling systems for the food, milling, and chemical process industries. Consisting of a weighing unit and a microprocessor control-and-monitoring station, ISCAFLO Systems are available in types for continuous weighing, yield management, single- and multi-formulation batching, etc.

W&T also offers a rugged belt-type volumetric feeder with capacities to 45 cubic feet per minute and manual or automatic control modes.

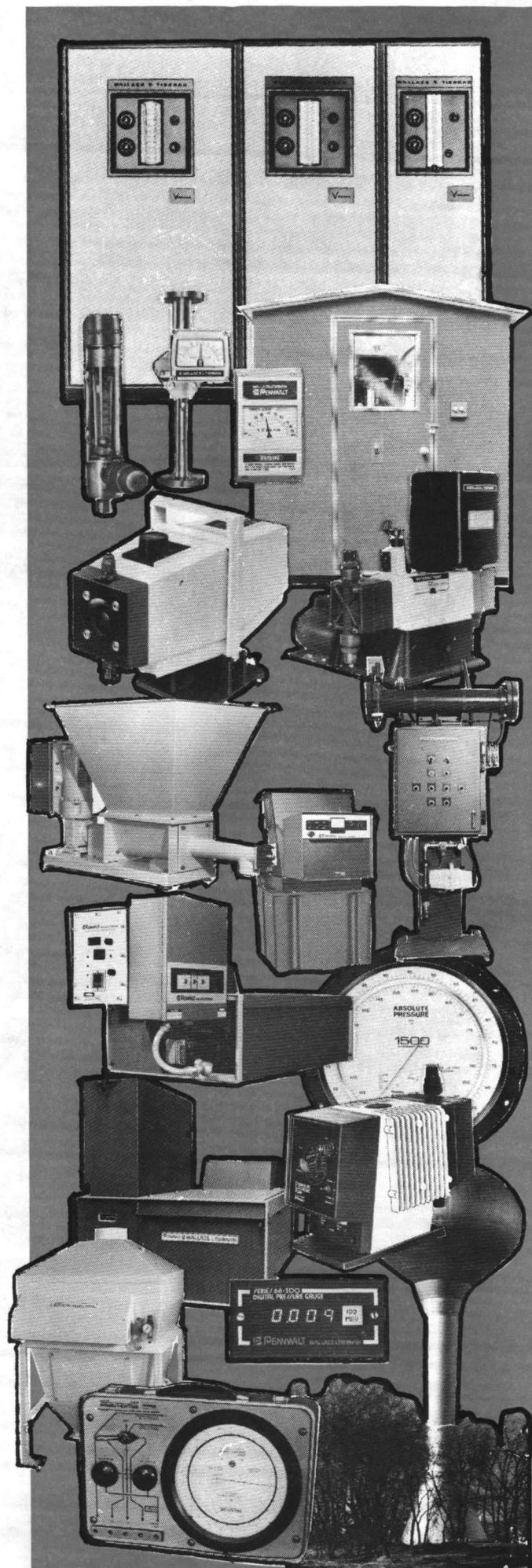
W&T Screw-Type Volumetric Feeders include a water-and-waste treatment model with chemical-resistant fiber glass hopper and a variety of control modes. W&T's industrial-type screw feeder is a rugged all-steel unit with capacities to 500 cubic feet per hour. It is available in a general purpose model, a model for difficult-to-feed materials, and an all-stainless, quick-clean sanitary model.

PRECISION PRESSURE INSTRUMENTS

Famous W&T Aneroid Dial Gauges come in models for absolute, gauge, and differential pressure; in many ranges (to 0 to 1000 psi), including vacuum and compound ranges; in dial diameters from 2 2/3 to 8 1/2 inches; and accuracies from 0.33% to 0.066% of full scale. W&T Digital Pressure Gauges are compact; measure absolute, gauge, or differential pressure; offer a wide choice of calibration units and 0-2 volt, 4-20 mA, or BCD output; accuracies of 0.05% and 0.1% of full scale.

W&T CORROSION CONTROL

W&T designs, installs, and maintains cathodic protection systems for controlling corrosion of water-storage tanks and water-and-waste-treatment structures. POLATROL® Systems automate cathodic protection. W&T Icing-tank Systems, with patented XL® Anode Assemblies, make cathodic protection systems in steel water tanks virtually impervious to damage by heavy winter ice. PLATINEX® platinum-niobium Anodes gives reliable long life protection and worthwhile economies in corrosion control.



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INTRODUCTION

This instruction book provides Technical Data, Installation, Operation, Service and Parts information on the W&T Series 50-125 Chlorine Detector - wall mounted arrangement.

This Chlorine Detector indicates the presence of chlorine gas in ambient air. Its sensitivity can be set for one ppm or three ppm by volume in ambient air. It is also possible to convert the sensitivity to 1/2 ppm or 3 ppm by making a minor modification in the circuitry.

WARNING: CHLORINE IS A HAZARDOUS SUBSTANCE AND IF BREATHED IN HIGH CONCENTRATIONS CAN CAUSE DEATH BY SUFFOCATION. TO AVOID POSSIBLE SEVERE PERSONAL INJURY, PRIOR TO INSTALLING THIS DETECTOR WITH W&T CHLORINATION EQUIPMENT, REFER TO THE "VERY IMPORTANT SAFETY PRECAUTIONS" PAGES INCLUDED IN THE W&T CHLORINATION EQUIPMENT INSTRUCTION BOOK. IF THIS DETECTOR IS NOT INTENDED FOR USE WITH W&T CHLORINATION EQUIPMENT, YOU MUST CONTACT YOUR CHLORINE SUPPLIER FOR CHLORINE HANDLING PRECAUTIONS AND SAFETY INSTRUCTIONS.

WARNING: TO AVOID POSSIBLE SEVERE PERSONAL INJURY OR DAMAGE TO THE EQUIPMENT, THIS EQUIPMENT SHOULD BE INSTALLED, OPERATED AND SERVICED ONLY BY TRAINED, QUALIFIED PERSONNEL WHO ARE THOROUGHLY FAMILIAR WITH THE ENTIRE CONTENTS OF THIS INSTRUCTION BOOK.

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NOTE: Numbers appearing in the lower margin of each page are for identification purposes only and are not intended as numerically consecutive page numbers.

VERY IMPORTANT SAFETY PRECAUTIONS

This and the following pages titled "Very Important Safety Precautions" provide in brief, information of urgent importance relative to SAFETY-INSTALLATION - OPERATION & MAINTENANCE of this equipment.

WARNING

TO AVOID POSSIBLE SEVERE PERSONAL INJURY, OBSERVE THE FOLLOWING PRECAUTIONS:

CHLORINE IS A HAZARDOUS SUBSTANCE AND IF BREATHED IN HIGH CONCENTRATIONS CAN CAUSE DEATH BY SUFFOCATION. TO AVOID POSSIBLE SEVERE PERSONAL INJURY, PRIOR TO INSTALLING THIS DETECTOR WITH W&T CHLORINATING EQUIPMENT, REFER TO THE "VERY IMPORTANT SAFETY PRECAUTIONS" PAGES INCLUDED IN THE W&T CHLORINATION EQUIPMENT INSTRUCTION BOOK. IF THIS DETECTOR IS NOT INTENDED FOR USE WITH W&T CHLORINATION EQUIPMENT, YOU MUST CONTACT YOUR CHLORINE SUPPLIER FOR CHLORINE HANDLING PRECAUTIONS AND SAFETY INSTRUCTIONS.

CHLORINE IS A HAZARDOUS SUBSTANCE, THE WALLACE & TIERNAN CHLORINE DETECTOR IS A DEVICE TO INDICATE THE PRESENCE OF CHLORINE GAS IN AMBIENT AIR. TO MAINTAIN NORMAL OPERATION, IT IS ESSENTIAL THAT FUNCTIONING OF THE DETECTOR BE CHECKED AND VERIFIED FREQUENTLY AS DESCRIBED IN THE FOLLOWING PARAGRAPHS.

TO MAINTAIN NORMAL OPERATION OF THIS DETECTOR, MAKE SURE THAT THE SENSOR IS COATED WITH ELECTROLYTE. IF THE SENSOR IS NOT COATED WITH ELECTROLYTE, THE DETECTOR WILL NOT FUNCTION.

AFTER ANY MAINTENANCE, THE DETECTOR SHOULD BE TESTED FOR RESPONSE TO CHLORINE TO ASSURE NORMAL OPERATION.

THE CIRCUIT BOARD CONTAINS 120 VAC AND SHOULD NOT BE TOUCHED WHEN POWER IS CONNECTED. TO AVOID POSSIBLE SEVERE PERSONAL INJURY CAUSED BY ELECTRICAL SHOCK, ALL MEASUREMENTS SHOULD BE TAKEN WITH A LONG PROBE TO AVOID TOUCHING THE EXPOSED RELAY CONTACTS OR OTHER ELECTRICALLY "HOT" TERMINALS.

REMOTE ACKNOWLEDGE TERMINALS CONTAIN 120 VAC WHEN POWER IS ON. TO AVOID POSSIBLE SEVERE PERSONAL INJURY FROM ELECTRICAL SHOCK, DO NOT CONTACT TERMINALS WHEN POWER IS ON.

TO ENSURE PROPER AND SAFE OPERATION OF THIS EQUIPMENT, USE ONLY W&T LISTED PARTS EXCEPT COMMERCIALY AVAILABLE PARTS AS IDENTIFIED BY COMPLETE DESCRIPTION ON PARTS LIST. THE USE OF UNLISTED PARTS CAN RESULT IN EQUIPMENT MALFUNCTIONS HAVING HAZARDOUS CONSEQUENCES.

DO NOT DISCARD THIS INSTRUCTION BOOK UPON COMPLETION OF INSTALLATION. INFORMATION PROVIDED IS ESSENTIAL TO PROPER AND SAFE OPERATION AND MAINTENANCE.

ADDITIONAL OR REPLACEMENT COPIES OF THIS INSTRUCTION BOOK ARE AVAILABLE FROM:

WALLACE & TIERNAN DIVISION
PENNWALT CORPORATION
25 MAIN STREET
BELLEVILLE, NEW JERSEY 07109

NOTE

Minor part number changes may be incorporated into W&T products from time to time that are not immediately reflected in the instruction book. If such a change apparently has been made in your equipment and does not appear to be reflected in your instruction book, contact your local W&T sales office for information.

Please include the equipment serial number in all correspondence. It is essential for effective communication and proper equipment identification.

REGIONAL OFFICES

INSTALLATION, OPERATION, MAINTENANCE AND SERVICE INFORMATION

Direct any questions concerning this equipment which are not answered in the instruction book to the Reseller from whom the equipment was purchased. If the equipment was purchased directly from Wallace & Tiernan Division, PENNWALT Corporation, contact the nearest office indicated below.

UNITED STATES

BOSTON

P.O. Box 351
Walpole, MA 02081
(617) 762-1620

KANSAS CITY

P.O. Box 875
Shawnee Mission, KS 66201
(913) 384-3933

CHICAGO

2001 Midwest Road
Suite 210
Oak Brook, IL 60521
(312) 620-8820

LOS ANGELES

1930 S. Brea Canyon Rd.
Suite C220
Diamond Bar, CA 91765
(714) 861-1006

CLIFTON

642 Broad Street
Clifton, N.J. 07013
(201) 472-7300

WASHINGTON, D.C.

11501 Georgia Ave.
Suite 210
Wheaton, MD. 20902
(301) 933-2110

COLUMBUS

1900 E. Dublin - Granville Rd.
Suite 204-A
Columbus, OH 43229
(614) 895-0911

SEATTLE

Bldg. No. 1, Suite 209
300 - 120th. Ave. N.E.
Bellevue, WA 98005
(206) 455-1298

DALLAS

7610 Stemmons Freeway (1-35E)
Suite 190
Dallas, TX 75247
(214) 631-3680

WINTER HAVEN

P.O. Box 709
Winter Haven, FL 33880
(813) 293-7707

CANADA

If the equipment was purchased directly from Wallace & Tiernan Division, Pennwalt of Canada Limited, contact the nearest office indicated below.

ALBERTA

207 Fourteenth St., N.W.
Calgary, Alberta T2N 1Z6
(403) 283-0573

NOVA SCOTIA

P.O. Box 2818, DEPS.
Dartmouth, Nova Scotia B2W 4R4
(902) 463-1964

BRITISH COLUMBIA

470 Granville Street
Suite 535
Vancouver, British Columbia V6C 1V5
(604) 682-6541

ONTARIO

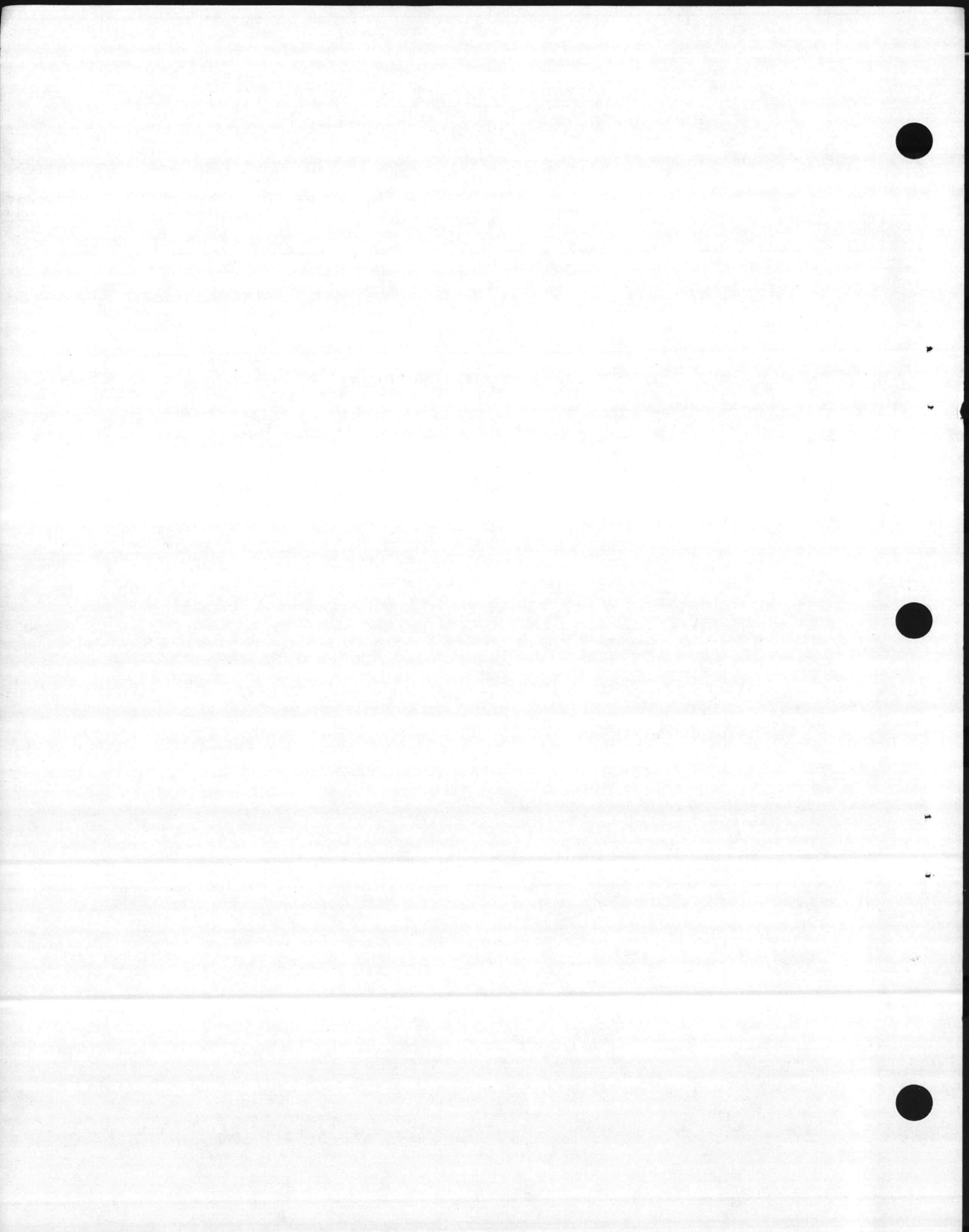
925 Warden Avenue
Scarborough, Ontario M1L 4C5
(416) 751-7561

MANITOBA

104-1280 Archibald Street
Winnipeg, Manitoba R2J 0Z3
(204) 256-6004

QUEBEC

Room 207
4280 Blvd. Metropolitan East
Montreal, Quebec H1S 1A2
(514) 729-2856



SECTION 1 - TECHNICAL DATA

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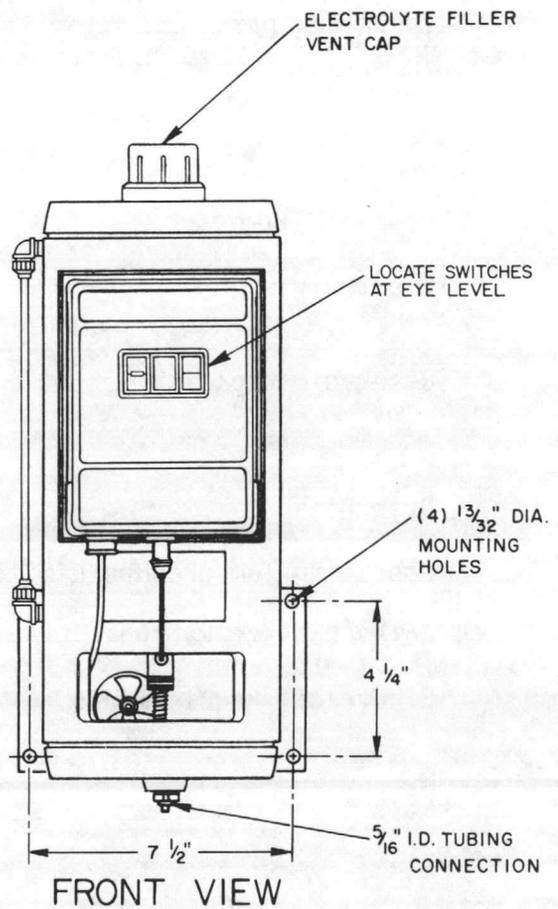
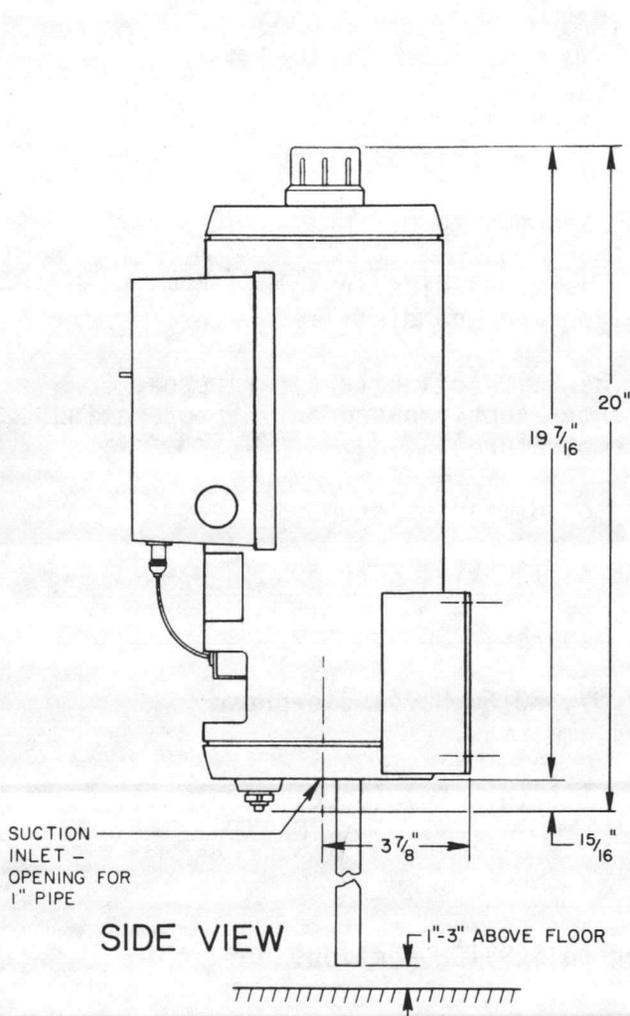
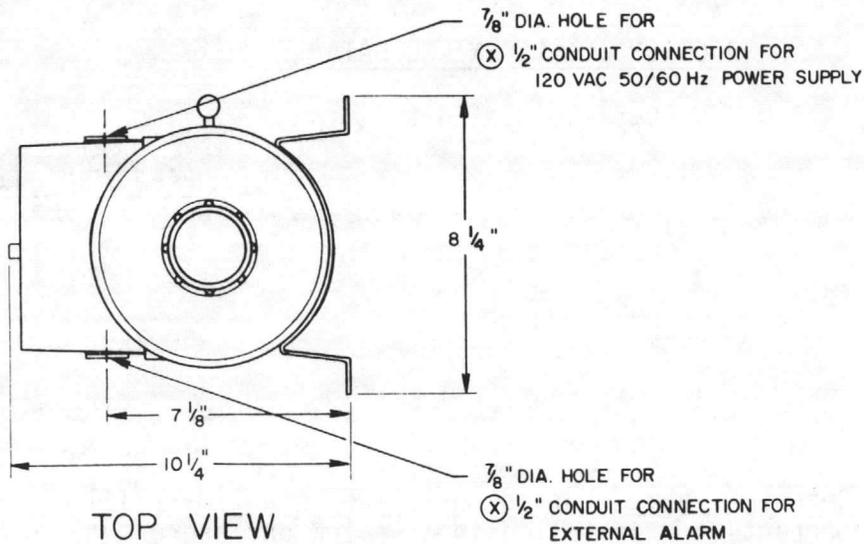
1 GENERAL

The Chlorine Detector is made of corrosion-resistant materials. The electronic components are installed in a sealed enclosure.

2 TECHNICAL DATA

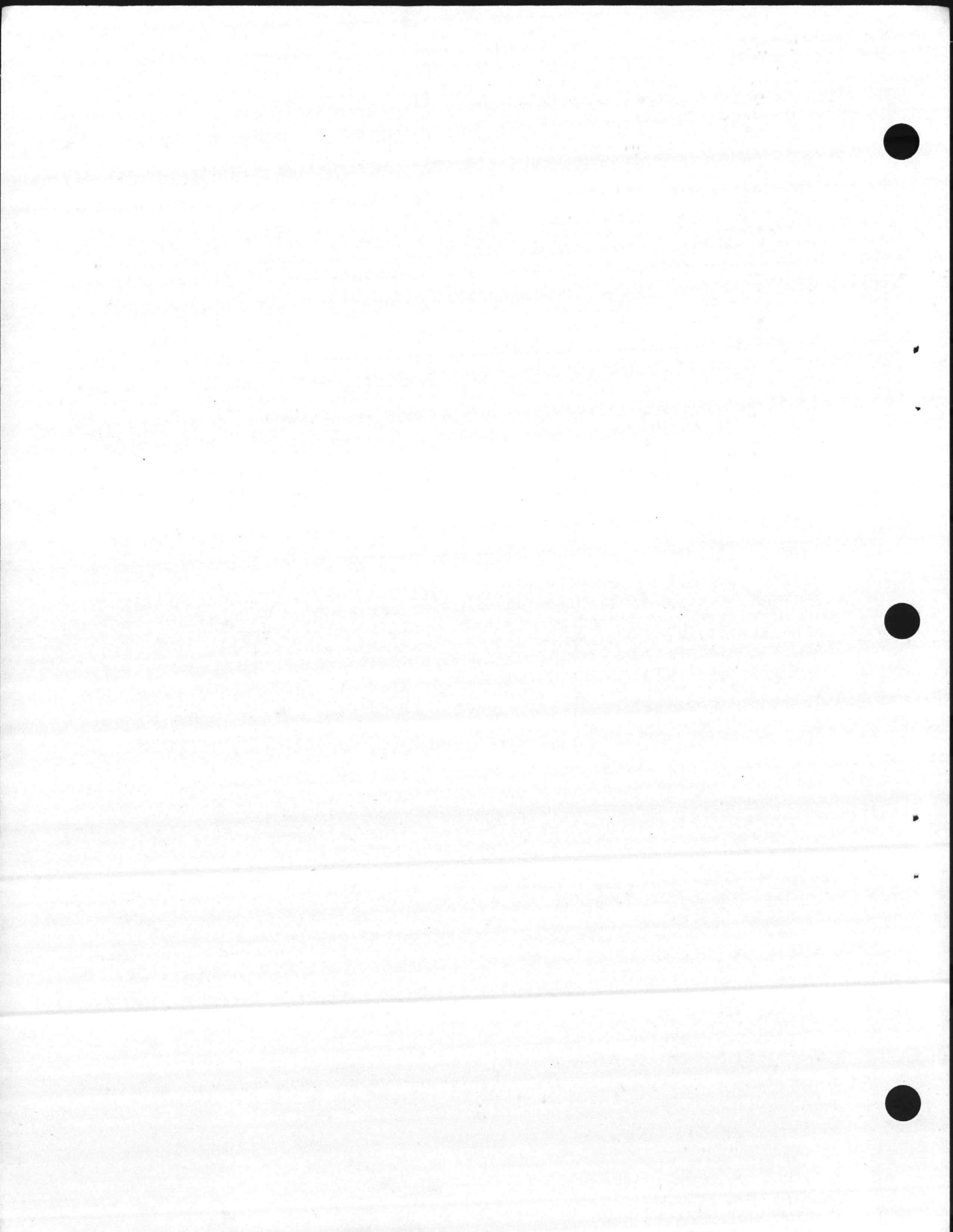
Sensitivity	1* or 3 ppm chlorine by volume in air (selectable) (1 ppm = 3mg/m ³) (0.5 ppm optional by customer)
Response Time	In seconds to 0.5 ppm, 1 or 3 ppm
Electrolyte	Potassium iodide in solution with glycerine and distilled water
Reservoir Capacity	1.34 Gal. (5.1 Liters) (approx. 3 months supply based on 75°F operating temperature).
Drip Rate	1 to 10 minutes/drop
Operating Temperature Limits	35 to 120°F (1.6 to 49°C)
Relay Contact Rating	8 Amperes, 150 Vac
Electrical Requirements	120V, 50/60 Hz single-phase .4 amp. max.
Weight	10 lbs (4.5 kg) (no electrolyte)

*Can be converted to 0.5 ppm. Refer to SERVICE section.



NOTE: (X) NOT FURNISHED BY W&T.

U 24754 CHLORINE DETECTOR - DIMENSIONS Wall Mounted



SECTION 2 - INSTALLATION

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1 STORAGE

If the detector is to be stored before use, it should be placed in a dry area where temperatures are within 0° to 120°F. Do not place any heavy articles on top of the storage box. The two gallons of electrolyte solution which are shipped with the detector should be stored in the cartons they were shipped in. If taken out, store container of electrolyte in a dark area.

2 UNPACKING

Whenever possible unpack all items at the installation site. Check each item against the packing list. Spare parts, not required for initial installation, should be set aside where they will be available when needed.

3 LOCATION

Mount the detector on a wall where it will be clearly visible and accessible using the mounting bracket provided (see Dwg. 50.125.03.001).

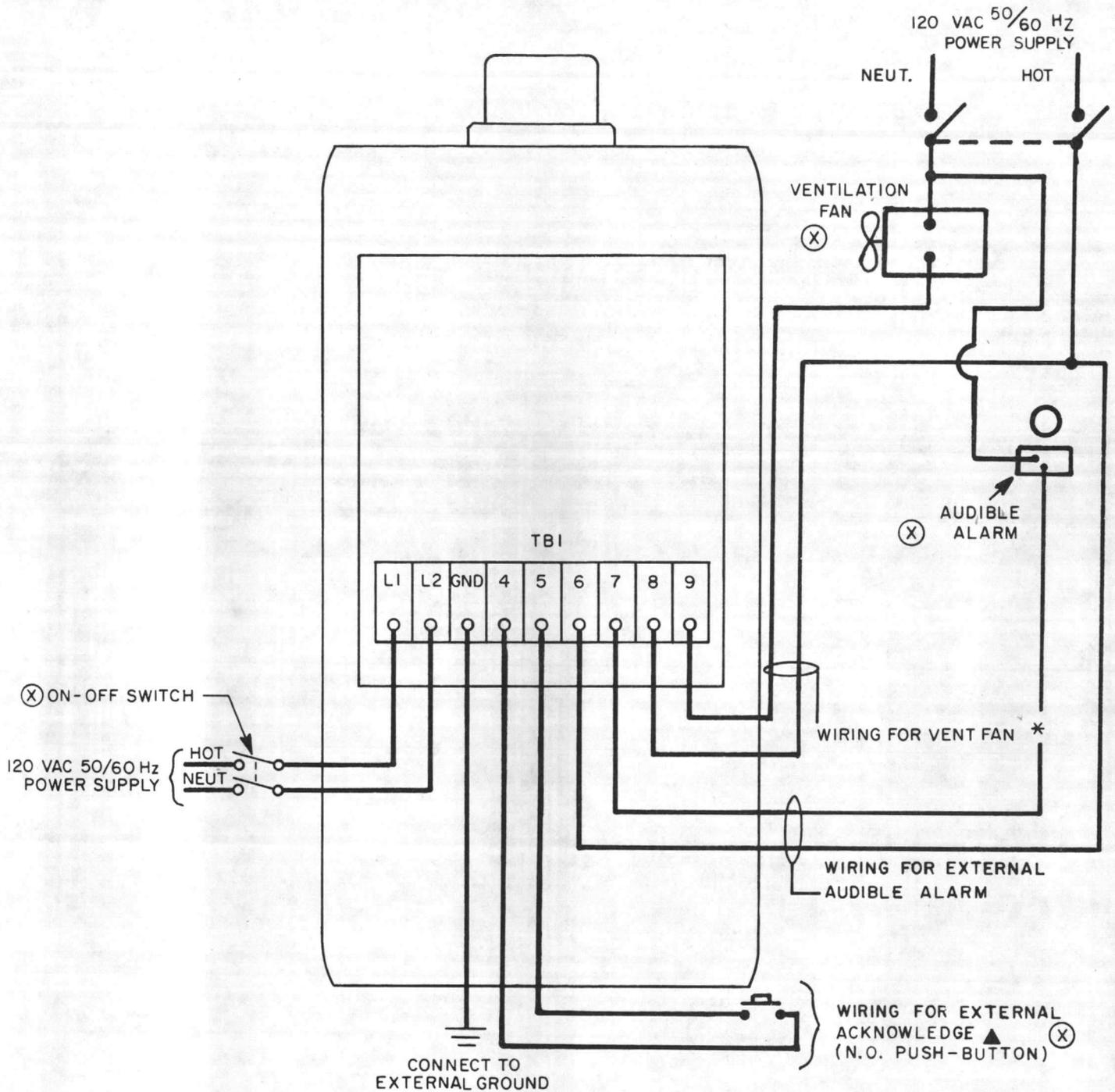
Chlorine gas is heavier than air and will collect at floor level in a room with no air circulation. The suction inlet pipe (if provided) will allow the detector to be mounted at eye level and sample air at floor level. Connect the pipe as shown in Dwg. 50.125.151.030.

4 ELECTRICAL CONNECTIONS (See Dwg. 50.125.130.015)

Connect a 120V, 50/60 Hz single-phase power supply to the detector terminal strip. If the detector is wired to actuate external alarm, and/or ventilating fans an independent power supply is required. The alarms should be the non-latching type as they can be silenced by the acknowledge button on the detector. W&T individual and central alarms are optional items which may be ordered. A remote alarm acknowledge switch may also be added. This must be a normally open push button switch.

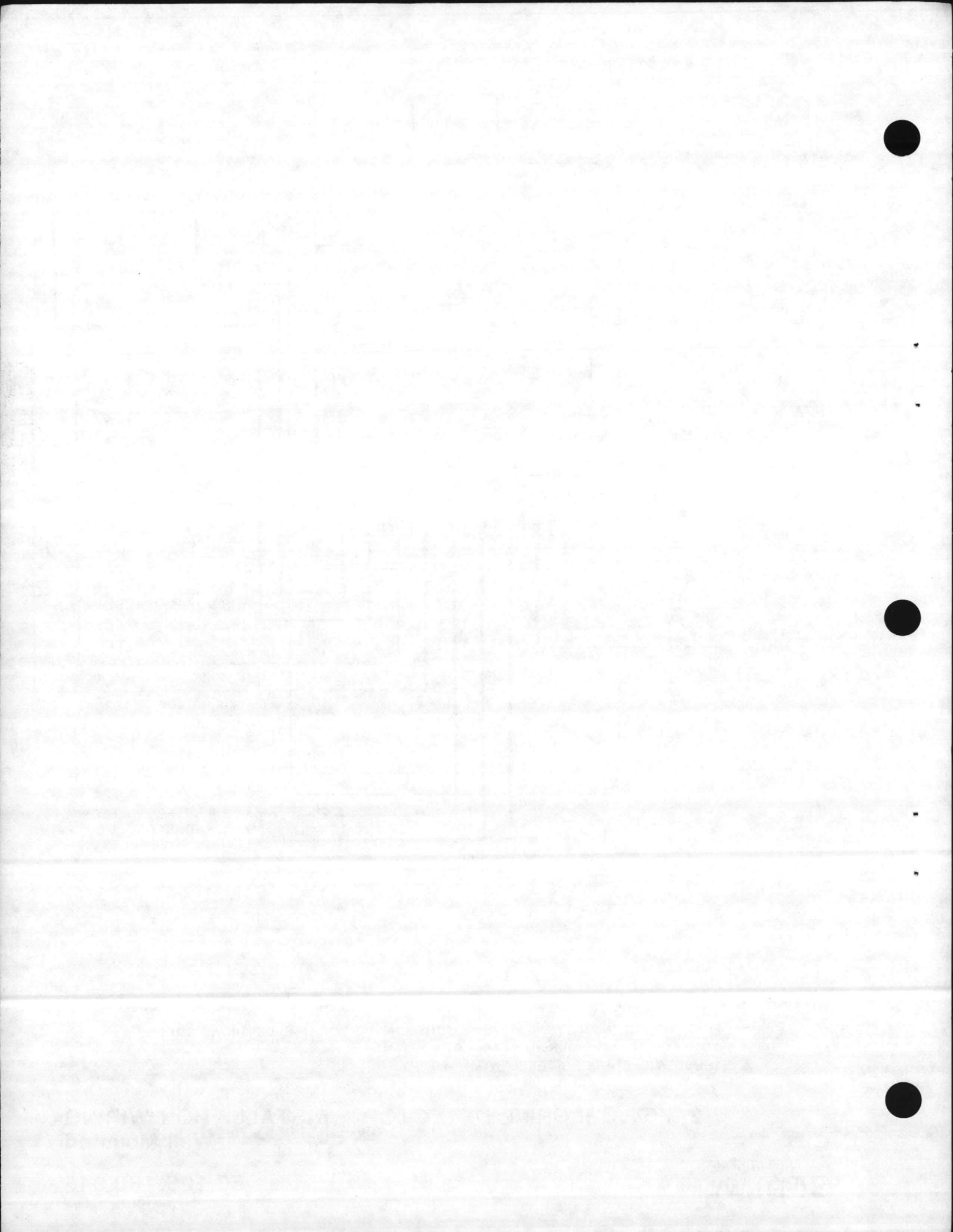
WARNING: REMOTE ACKNOWLEDGE TERMINALS CONTAIN 120 VAC WHEN POWER IS ON. TO AVOID POSSIBLE SEVERE PERSONAL INJURY FROM ELECTRICAL SHOCK, DO NOT CONTACT TERMINALS WHEN POWER IS ON.

WARNING: CHLORINE IS A HAZARDOUS SUBSTANCE AND IF BREATHED IN HIGH CONCENTRATIONS CAN CAUSE DEATH BY SUFFOCATION. TO AVOID POSSIBLE SEVERE PERSONAL INJURY, PRIOR TO INSTALLING DETECTOR WITH W&T CHLORINATION EQUIPMENT REFER TO THE "VERY IMPORTANT SAFETY PRECAUTIONS" PAGES INCLUDED IN THE W&T CHLORINATION EQUIPMENT INSTRUCTION BOOK. IF THIS DETECTOR IS NOT INTENDED FOR USE WITH W&T CHLORINATION EQUIPMENT, YOU MUST CONTACT YOUR CHLORINE SUPPLIER FOR CHLORINE HANDLING PRECAUTIONS AND SAFETY INSTRUCTIONS.



- NOTE:**
- (X) NOT FURNISHED BY W&T.
 - FIELD WIRING (NOT BY W&T) MUST CONFORM TO LOCAL ELECTRICAL CODES.
 - * CONTACT CLOSURES DURING ALARM CONDITION.
 - ▲ THESE WIRES ARE POWERED WITH 120 VOLTS.

U 24754 CHLORINE DETECTOR - INSTALLATION WIRING Wall Mounted





SECTION 3 - OPERATION

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1 DESCRIPTION OF PANEL SWITCHES

SELECTOR SWITCH (1ppm/3ppm)(optional 0.5 ppm): This switch is used to select the sensitivity of the detector. When switched to 1ppm (or 0.5 ppm) the green light will turn on. When switched to 3ppm the amber light will turn on. These lights also indicate "power on".

"PRESS TO TEST" Button: This button is used to test the electronic circuitry of the detector. When it is pressed, the red alarm light will turn on to indicate that the circuitry is functioning properly.

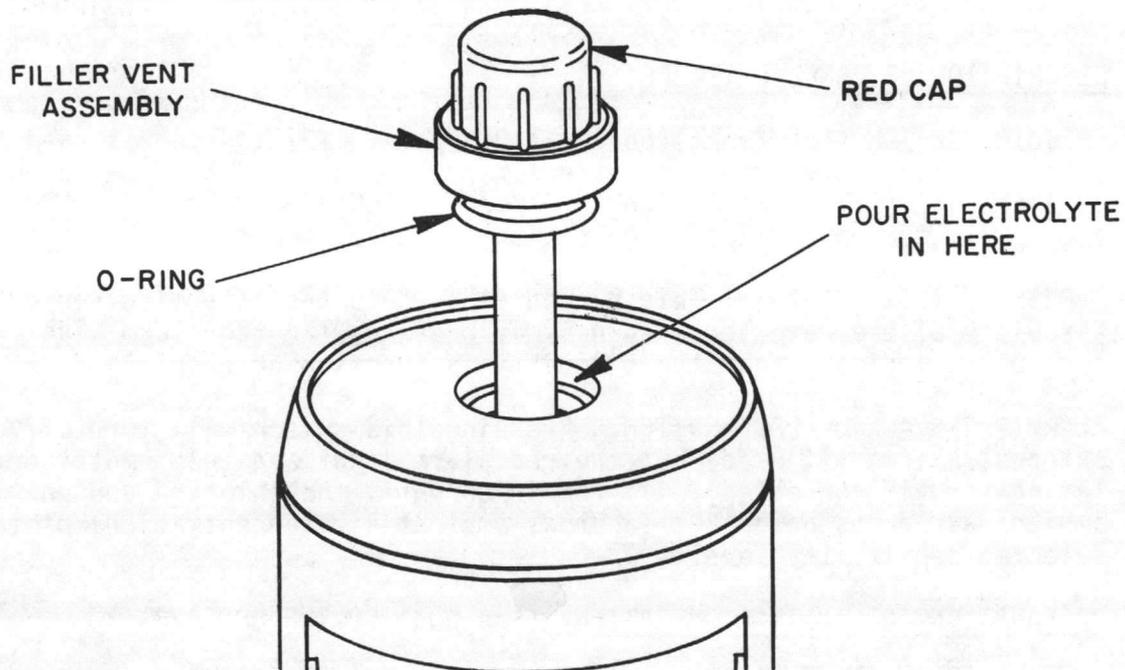
ALARM/PRESS ACKNOWLEDGE SWITCH: Pressing this switch will turn off external alarms (if used) but the red alarm light and the remote ventilating fan (if connected) will remain on until the chlorine content in ambient air drops below 60% (approx. ambient air concentration) of the selected sensitivity level.

2 PREPARATION FOR INITIAL OPERATION (See Dwg. 50.125.000.023)

- a. Remove the sensor (14) by loosening locking screw (15) and sliding the electrode off. Take care not to dislodge the platinum wires from their grooves. Clean the sensor with detergent solution and soft brushes supplied (TIDE detergent solution may be used). Rinse the sensor with distilled water (do not use tap water) using the plastic wash bottle supplied. Check that the glass orifice is clean and dry. Bubbles of air will block the flow. Reinstall the sensor and tighten the locking screw by hand.
- b. Connect drain tubing to the drain nipple (12) of the detector to provide for disposal of spent electrolyte into a suitable drain or container.
- c. To fill the reservoir with electrolyte first remove the filler vent unit by turning and lifting the gray vent assembly (35) below the red cap (1) so as to leave the cap in place. This is a friction fit. Dilute the U-25660 electrolyte concentrate with eight parts of distilled water per one part (volume) concentrate as per the directions on the electrolyte container. Fill the reservoir with electrolyte solution provided. Leave a small air space in the reservoir. Air space will result in a faster drip rate and temporarily a greater consumption of electrolyte. Reservoir capacity is 1.34 gallons(5.1

liters). It will be necessary to refill the reservoir in the same manner about every 3 months of normal operation (see Section 1 - Technical Data).

- d. Check the electrolyte flow to the sensor. If dripping is not evident, remove sensor and check for flow through orifice. The sensor and its platinum wire electrodes must be completely wet with electrolyte. If not, use a cotton swab to wipe around the sensor and spread the electrolyte. Spraying the sensor with electrolyte or distilled water using the plastic wash bottle supplied will also help wet the sensor.



The initial drip rate should be one drop every 5 seconds to 1 minute. After a few hours (depending on how much air is left in the top of the reservoir after filling) this should be slower; approximately one drop every 1 to 10 minutes.

CAUTION: Avoid touching platinum wire electrodes with fingers. Touching may dislodge the wires and finger oil may desensitize the sensor.

NOTE: Drip rate will vary with temperature and barometric changes. Operation at higher temperatures will increase consumption requiring refilling more frequently. Operation at lower temperatures will decrease consumption and lengthen refill cycles.

NOTE: If electrolyte does not flow properly see TROUBLE SHOOTING GUIDE in the SERVICE section of this book.

WARNING: TO MAINTAIN NORMAL OPERATION OF THIS DETECTOR, MAKE SURE THAT THE SENSOR IS COATED WITH ELECTROLYTE. IF THE SENSOR IS NOT COATED WITH ELECTROLYTE, THE DETECTOR WILL NOT FUNCTION.

- e. To test the response of the detector to chlorine, first turn on power. Hold a small beaker one inch below the suction inlet pipe. Mix four drops of pH4 buffer (or vinegar) with four drops of CLOROX (supplied by customer) in this container. This mixture will release a small amount of chlorine gas. The detector should respond in seconds.

If the detector does not respond, see the TROUBLE SHOOTING GUIDE in the SERVICE section of this book.

NOTE: Test kit U25734 containing pH4 buffer and cap plug may be obtained from Wallace & Tiernan.

- f. After alarm, flush the sensor with distilled water using the plastic wash bottle supplied.
- g. Test the detector circuitry by pressing the "PRESS TO TEST" button on the front panel. The red alarm light should go on. If the light does not go on refer to the TROUBLE SHOOTING GUIDE in the SERVICE section of this book.

WARNING: TO MAINTAIN NORMAL OPERATION OF THIS DETECTOR, MAKE SURE THAT THE SENSOR IS COATED WITH ELECTROLYTE. IF THE SENSOR IS NOT COATED WITH ELECTROLYTE, THE DETECTOR WILL NOT FUNCTION.

3 OPERATION

Turn on the 120 Vac power supply to the detector. Power-on condition is indicated by the illuminated green (1 ppm) or amber (3 ppm) light on the detector selector switch. The detector alarm circuit is now ready for use, but remote alarms will not operate until their separate power supply is energized.

3.1 ALARM CONDITIONS

In the event chlorine gas in ambient air reaches or exceeds the alarm level of the detector (1 ppm or 3 ppm or 0.5ppm), the red alarm light will go on and relay contacts for external alarm circuits will be closed.

Locate the source of chlorine gas and eliminate it. External alarms can be silenced by pressing the "ALARM ACKNOWLEDGE" button. The red alarm light on the detector will remain on until the chlorine content in ambient air falls below 60% of the selected sensitivity of the detector. When the alarm condition has been eliminated, the sensor should be cleaned and wetted with electrolyte again by using the wash bottle supplied to speed up the return of the detector to the normal condition.

In the event of a power failure, the relay contacts for external alarm connections will close. This will cause external alarms on a separate

power supply to actuate. When power is restored the relay contacts will open again, if no chlorine alarm condition exists.

4 THEORY OF OPERATION (See Dwg. 50.125.180.010)

The Wallace & Tiernan Chlorine Leak Detector can be considered as having two sections:

1. The sensor, which consists of two platinum electrodes, covered by an electrolyte solution.
2. The electronic circuit which controls and monitors that sensor as well as providing contact closure outputs, alarm and range indication, and test capability.

Block #1 of the block diagram containing the sensor and a portion of the electronics, performs two functions. One is to develop a 0.4 volt potential across the electrodes. The second is to convert the resultant current (I) flowing between the electrodes (which depends on chlorine concentration in the incoming air) to a voltage (Vo). This is done according to:

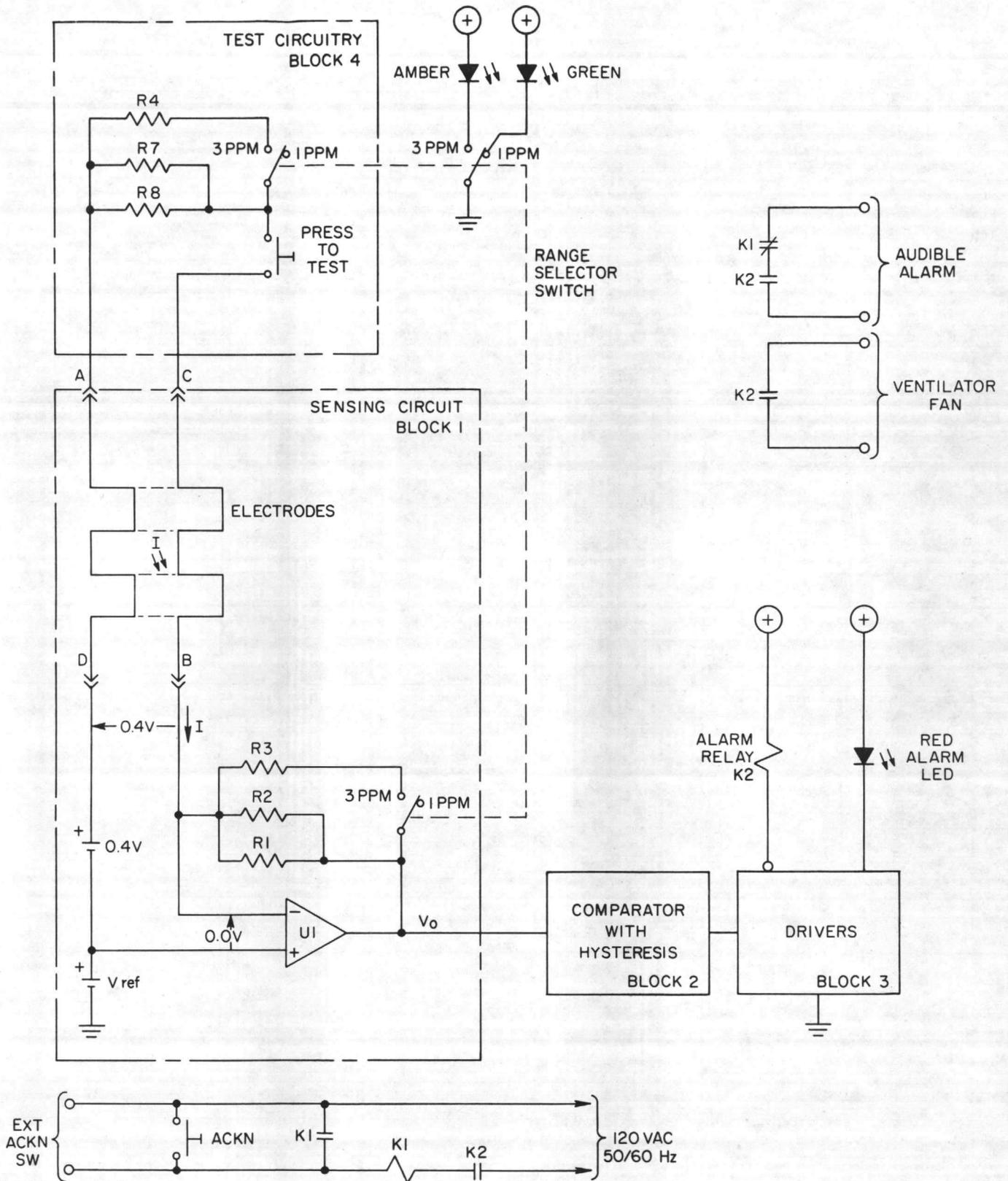
$$V_o = V_{ref} - I_k,$$

Where k is a constant which depends on the position of the Range Selector Switch.

Vo is compared, in Block #2, with an alarm level reference voltage. When Vo drops (Vo decreases with increasing chlorine concentration) to the alarm voltage reference level, an alarm signal (a low level) appears on the output of block #2. The drivers in block #3 will then illuminate the alarm LED indicator and de-energize the relay K2, causing the audible alarm and ventilator contacts to close. Pressing the acknowledge switch will energize relay K1, thus latching open the audible alarm until the chlorine concentration drops to approx. 50% of the alarm level concentration. When this occurs, Vo of block #1 will return to a "safe" or "reset" level and the comparator output, in block #2, will return to a high level. The drivers in block #3 then reenergize relay K2 and turn off the alarm indicator. The K1 latch will be broken and the circuit completely reset, ready to warn of another chlorine leak.

The circuitry can be tested by pressing the "Press to Test" button shown in block #4. Pressing this button will insert a resistor of the proper value (dependent upon the position of the range selector switch) to pass the alarm level current (I) between the electrodes. The circuit will then behave as if there were an alarm condition. The audible alarm and ventilator contacts will close and the red alarm light will illuminate. Releasing the test button will cause the circuit to reset to normal (unless there is a chlorine concentration of greater than one-half the alarm level, which will sustain the alarm condition).

The complete schematic diagram, with voltage levels, is provided in Dwg. 50.125.155.015. It should be noted that wherever possible solid-state switching is used. These switches contain electronics and are very different from mechanical switches even though schematically they are similarly represented.



NOTE: RELAY CONTACTS SHOWN WITH POWER ON AND A NON-ALARM CONDITION.

SERIES 50-125 CHLORINE DETECTOR - BLOCK DIAGRAM





SECTION 4 - SERVICE

LIST OF CONTENTS

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U25444 Circuit Board-Conductor Side	50.125.150.010
Suction Inlet	50.125.151.030
Label-Warning	50.125.152.060

1 GENERAL

WARNING: TO AVOID POSSIBLE SEVERE PERSONAL INJURY FROM ELECTRICAL SHOCK, TURN POWER OFF BEFORE SERVICING. L2257

Keep all unused openings to the electrical compartment of the detector, plugged to prevent corrosion. Check the level of the electrolyte in the sight tube. If level drops to where only 1/8-inch is visible, it must be refilled.

Every two to five years, depending on environment (clean, dusty etc.), the reservoir must be drained and cleaned. Use about four ounces CLOROX per gallon of water for cleaning and rinse two or three times with distilled water.

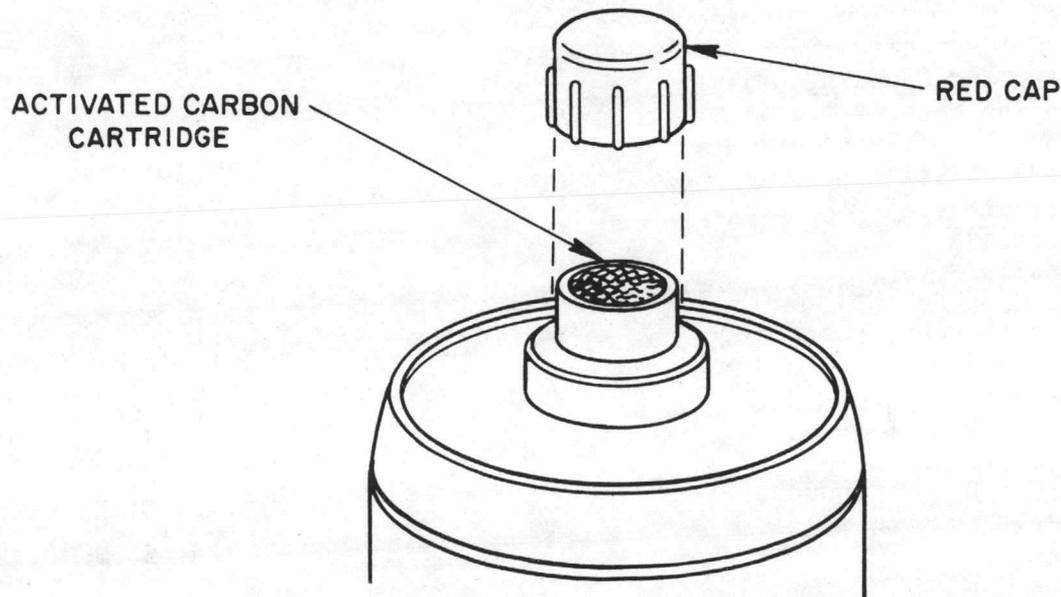
CAUTION: Do not leave any CLOROX inside reservoir.

Depending on local air quality it is possible for air-borne spores to create growths, having a gelatinous form, in the electrolyte reservoir and/or on the sensor. Such growths would be visible and detectible during normal daily operating check of the detector. If present they should be removed immediately following the procedure in par. 4 "Cleaning The Sensor".

2 REPLACING ACTIVATED CARBON CARTRIDGE AND ELECTROLYTE
(See Dwg. 50.125.000.023)

Following exposure of the detector to a high concentration of chlorine,

it is necessary to replace the activated carbon cartridge in the filler cap unit. Remove the red cap (1) by lifting off and remove the activated carbon cartridge (32). Replace the cartridge with a new one. Replace the red cap by pressing in place.

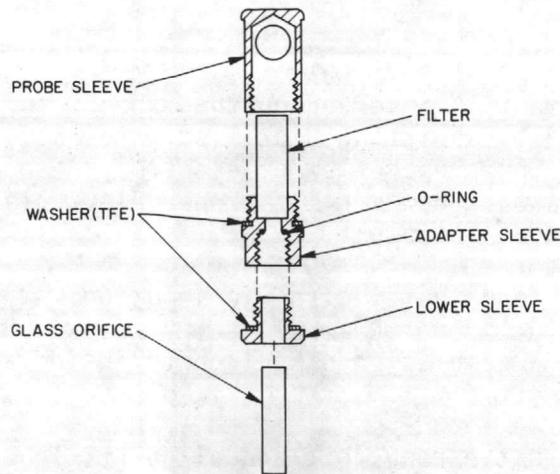


Electrolyte must be checked at this time. If the electrolyte has changed to a yellow or brownish color, it must be replaced as follows:

- a. Deenergize unit by disconnecting power cord.
- b. Remove sensor (14) by unplugging receptacle assembly (16) loosening locking screw (15) and sliding off.

CAUTION: Avoid touching the wire wound portion of the sensor. Touching may dislodge the wires and finger oil may desensitize the sensor.

- c. Most of the electrolyte can be drained by disconnecting the sight tube at its top union nut (7) and bending the tube down into a container which is below the bottom union nut (7). The remaining electrolyte may be drained as follows:
 - (1) Remove the red drip tray (11).
 - (2) Place a suitable container under the detector to catch the remaining electrolyte.
 - (3) Refer to the following sketch. Unscrew the adapter sleeve from the probe sleeve and remove with orifice and filter. This will allow the balance of electrolyte to flow freely out of the detector.



- d. Before replacing parts, examine the glass orifice for foreign material in the opening. Clean if necessary. Clean out the capillary of the orifice using the cleaning wire provided as part of the maintenance kit. Before reinstalling the orifice, make sure it is dry. Blow out any liquid in the capillary.
- e. Reinstall the filter and orifice in the adapter sleeve and screw into probe sleeve.
- f. Reinstall the sensor. Be sure sensor is up far enough to touch the grommet (slide valve open).
- g. Remove Vent Assembly (35), refill the reservoir with new electrolyte mixture and replace the filter vent assembly.
- h. Check to be sure electrolyte is dripping from sensor.

WARNING: TO MAINTAIN NORMAL OPERATION OF THIS DETECTOR MAKE SURE THAT THE SENSOR IS COATED WITH ELECTROLYTE. IF THE SENSOR IS NOT COATED WITH ELECTROLYTE, THE DETECTOR WILL NOT FUNCTION.

3 CHANGING A FUSE

The fuse holder (19) is located on the bottom surface of the housing (4, Dwg. 50.125.000.023). Twist the fuse holder counterclockwise to remove. Fuse (20) will come out with holder. Replace with a fuse from spare parts.

4 CLEANING THE SENSOR UNIT

If the sensor unit appears dirty or does not wet completely, it should be cleaned. The sensor unit may be cleaned by using the electrode cleaning solution (UXB-13765) and the soft brush that is provided in the maintenance kit. The sensor should then be rinsed using distilled water.

CAUTION: Avoid touching the wire wound portion of the sensor. Touching may dislodge the wires and finger oil may desensitize the sensor.

If a gelatinous mass is observed on the exposed surface of the electrode, it can be removed by squirting distilled water at it from a wash bottle. If this restores the proper flow of electrolyte solution, no further action need be taken. However, if proper electrolyte flow is not restored, proceed as follows:

- a. Remove and discard the electrolyte solution.
- b. Clean out any accumulation of gel, both inside and beneath the reservoir.
- c. Thoroughly wash the reservoir and all parts leading down to the electrode with a dilute solution of sodium hypochlorite. Prepare this solution by diluting 4 oz. of 5-1/4% sodium hypochlorite (Clorox) with one gallon of water. Take particular care to saturate the foam filter.
- d. Rinse all parts several times with water. Use distilled water for the last rinse. Take particular care to flush out the foam filter by squeezing.
- e. Reassemble and add newly mixed electrolyte solution. Be sure to use distilled water in preparing this solution.
- f. Monitor performance closely. If build-up of a gelatinous mass continues to inhibit the proper flow of electrolyte solution, each time the reservoir is refilled (see Section 3 - Operation) thoroughly dissolve approximately 40 grams of Sodium Benzoate into each 1.34 gallons of filling solution before pouring it into the reservoir. Sodium Benzoate is a common food preservative widely available at chemical supply houses.

5 CHANGING FILTER AND CLEANING ORIFICE

The probe sleeve (44) becomes a valve when inserted in grommet (42). This sleeve may be pulled down until it stops moving easily (about 3/8") to shut off the flow of electrolyte through the filter (43) and glass orifice (46). When this has been done the adapter sleeve (45) may be unscrewed from the probe sleeve and removed from the detector along with the filter and orifice. This feature provides easy access to the filter for replacement and the orifice for cleaning. If the probe sleeve does not slide easily in grommet (42), or unscrew easily from the adapter sleeve, the sensor may be replaced and used as a handle. Gently rocking and/or twisting the sensor will help free a sticking probe sleeve. A small amount of silicone grease may be needed to assure easy assembly.

6 SERVICING THE FAN AND MOTOR ASSEMBLY

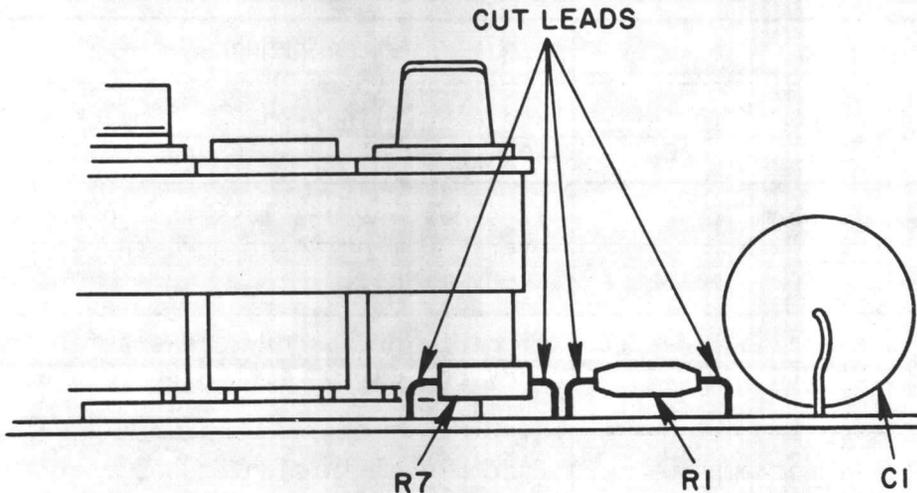
To remove the fan and motor assembly mounted on stainless steel tray:

- a. Deenergize unit by disconnecting power cord.
- b. Insert thumb(s) into the small clearance space between the reservoir housing and the stainless steel tray bottom just in front of the drip tray. Push back and down to disengage the front lip of the stainless

steel tray bottom. Insert the first two fingers in the small clearance space at the rear of the stainless tray and push forward and down to disengage the back lip of the stainless tray. After front and back lips are disengaged squeeze the tray between thumb and fingers and pull down to remove the assembly. This assembly must fit tightly into the reservoir particularly if a suction inlet pipe (50.125.151.030) is used. Straighten the tray if it becomes deformed during removal. To reassemble, reverse the procedure.

7 CONVERSION TO 0.5 PPM SENSITIVITY

To convert to 0.5 ppm sensitivity the circuit board (29) must be removed from the housing (4). First disconnect all external power sources. Disconnect plugs connecting sensor to housing. Unscrew both screws (25) from front of housing. Remove housing from detector. Unscrew the four screws (23) holding the circuit board in place. Disconnect electrical connections to the circuit board and remove it from the housing.



Locate resistors R1 and R7 (see Dwg. 50.125.004.005). Carefully remove these resistors by cutting the leads.

Install the paddle switch cover which is engraved 0.5 ppm (supplied in spare parts) on the selector switch in place of the 1 ppm paddle switch (S1) cover. This cover will snap on after the existing cover is removed. Reverse procedure to reassemble detector.

8 OPERATIONAL CHECKLIST

WARNING: CHLORINE IS A HAZARDOUS SUBSTANCE. THE WALLACE & TIERNAN CHLORINE DETECTOR IS A DEVICE TO INDICATE THE PRESENCE OF CHLORINE GAS IN AMBIENT AIR. TO MAINTAIN NORMAL OPERATION, IT IS ESSENTIAL THAT FUNCTIONING OF THE DETECTOR BE CHECKED AND VERIFIED FREQUENTLY AS DESCRIBED IN THE FOLLOWING PARAGRAPHS.

8.1 ON A DAILY BASIS, CHECK THE FOLLOWING ITEMS:

- a. Make sure there is electrolyte in the reservoir.
- b. Check for proper drip rate from sensor (one to ten minutes/drop).
- c. Check detectors response to chlorine (use test kit provided).
- d. Press test button. Red alarm light must turn on.
- e. Flush sensor with distilled water, if it is not clean and completely wet.

8.2 ON A MONTHLY BASIS, CHECK THE FOLLOWING ITEMS:

NOTE: For maximum reliability the chlorine detector must be checked frequently. It is recommended that the following items be checked once a month as a minimum.

CHECK THAT:	PROCEDURE:
a. Circuitry responds to test pushbutton.	Red alarm light should come on when test pushbutton is depressed.*
b. Drip rate is normal.	It should be not less than one drop every 10 minutes or more than 1 drop every minute.*
c. Sensor is clean and covered with electrolyte (NO DRY SPOTS).	If dirty or has dry areas refer to SERVICE section (CLEANING OF SENSOR UNIT).
d. Reservoir is not empty.	Check level in sight tube.
<u>NOTE:</u> Only refill reservoir when required, removing filter vent cap and filling when not required will result in a higher consumption of electrolyte. A full reservoir should last about 3 months.	
e. Drain container is not over-flowing.	If full dispose of spent electrolyte.
f. Fan operational.	Blade turning freely.*
g. No leaks.	Fluid coming out around grommet, O-ring, sight tube, joints, etc.**
h. Detector will respond to chlorine.	Use test kit U25734*.

*If any problems refer to TROUBLESHOOTING GUIDE in this section.

**Reservoir must be drained first in order to replace item.

8.3 ON AN ANNUAL BASIS, CHECK THE FOLLOWING ITEMS:

NOTE: For maximum reliability the chlorine detector must be checked frequently. It is recommended that the following items be checked annually as a minimum.

CHECK:	PROCEDURE:
a. Sponge rubber strip behind circuit board.	Replace if ripped, cracked or excessively worn.
b. O-ring around filter vent cap unit.	Replace if cracked or excessively worn.
c. O-ring around glass orifice.	Replace if cracked or excessively worn.
d. Grommet (sensor mounting).	Replace if cracked, leaking or excessively worn.**
e. Sight tube.	Replace if yellowing, cracked or excessively worn.**
f. Fan wiring.	No loose or broken connections.
g. Drain tube connection.	Not loose, cracked or leaking.
h. Sensor wiring.	No loose or broken connections.
i. Mounting bolts.	No rust or corrosion.
j. Charcoal cartridge in vent cap unit.	Replace if charcoal is wet.

9 TROUBLE SHOOTING GUIDE

The following guide will aid in promptly diagnosing and correcting possible operational problems.

WARNING: AFTER ANY MAINTENANCE THE DETECTOR SHOULD BE TESTED FOR RESPONSE TO CHLORINE TO ASSURE NORMAL OPERATION.

*If any problems refer to TROUBLESHOOTING GUIDE in this section.
**Reservoir must be drained first in order to replace item.

TROUBLESHOOTING GUIDE

PROBLEM	SYMPTOM(S)	PROBABLE CAUSE	CORRECTIVE ACTION	REFERENCE ITEM
RESERVOIR DRAINS QUICKLY	Drip rate never slows down (always about 1 drop every minute or faster).	Filter vent assembly is not secured.	Refill detector and press vent assembly down securely.	Section 3 Para. 2c
		O-ring in vent assembly is worn.	Replace O-ring and refill.	
		Top elbow for sight tube is not screwed in tight enough.	Screw in hand tight, with teflon tape around threads and refill.	
		Leak at O-ring or grommet at sensor.	Replace O-ring or grommet and refill.	Section 4 Para. 5
NO RESPONSE TO CHLORINE LEAKS	Sensor dry.*	Reservoir is empty.	Refill with electrolyte solution.	Section 4 para. 2 & 4
		Air binding in orifice.	Clean glass orifice and blow out all liquid.	Section 4 Para. 5
		Clogged filter. "Gel" growths on sensor & filter or in reservoir.	Replace filter. Remove gel-clean system.	Section 4 Para. 4
	Sensor only partially wet.*	Dirt on sensor.	Remove sensor and clean using detergent and cleaning brush.	Section 4 Para. 4
		Electrolyte never covered sensor originally.	Using a Q-tip wipe around sensor to wet entire area, or spray with distilled water from wash bottle.	Section 3 Para. 2d
	Test Pushbutton responds, power light on.	Sensor is dry.*	Wet sensor as explained previously and check drip rate.	

*Check to be sure sensor is pushed up against grommet to open sleeve valve.

PROBLEM	SYMPTOM(S)	REFERENCE PROBABLE CAUSE	CORRECTIVE ACTION	ITEM
NO RESPONSE TO CHLORINE LEAKS (CONT'D)	Power light on but no response to test push- button.	Sensor not plugged in.	Plug in sensor.	
		Open circuit in sensor, or sensor to circuit board wiring.	Check sensor with conti- nuity tester.	
		Faulty pushbutton, faulty circuit board.	Refer to para. 10 (TROUBLE- SHOOTING CIRCUIT BOARD).	Section 4 Para. 10
ALARM LIGHT DOES NOT LIGHT	External alarm and blower operate.	Alarm light burned out.	Replace LED (light).	
CONSTANT AUDIBLE ALARM	Power light on; no red alarm light but con- stant audible alarm.	Improper wiring. Faulty circuit board.	Refer to para. 10 (TROUBLE- SHOOTING CIRCUIT BOARD). Refer to K1 & K2.	Section 4 Para. 10
	Power light off; no red alarm light but con- stant audible alarm.	Loss of power to detec- tor.	Check with voltmeter and restore power.	
RED ALARM LIGHT DOES NOT EXTING- QUISH	Constant alarm state.	Short at platinum wire electrodes.	Place platinum wire electrodes back in groove. Clean or re- place sensor.	Section 4 Para. 4
		Faulty circuit board or Faulty Switch.	Refer to para. 10 (TROUBLE- SHOOTING CIRCUIT BOARD).	Section 4 Para. 10
		Electrolyte contaminated.	Refill with new electrolyte. Wash sensor.	Section 4 Para. 2
	Low level of chlorine in sample air.	Small chlorine leak. (Detector will alarm below the threshold of smell).	Find and repair leak.	

PROBLEM	SYMPTOM(S)	PROBABLE CAUSE	CORRECTIVE ACTION	REFERENCE ITEM
NO POWER LIGHT(GREEN) OR (AMBER)	Fan is operational. External alarm (audible) will not reset.	Blown fuse.	Replace fuse. Look for shorts.	Section 4 Para. 10
		LED has burned out.	Replace LED. (DS1/DS3)	Section 4 Para. 10
EXTERNAL ALARM	Blower function.	Faulty switch.	Refer to para. 10 (TROUBLE-SHOOTING CIRCUIT BOARD).	
FAN IS NOT RUNNING	Fan blade moves freely but will not operate when power is applied. Detector power light is on.	Break in wiring. Motor has burned out.	Find break and repair. Replace motor.	
FUSE BLOWS CONTINUOUSLY	Power light out. Detector will not respond to chlorine.	Short in wiring from fuse holder to circuit board.	Replace fuse holder. Refer to 10 (TROUBLE-SHOOTING CIRCUIT BOARD).	Section 4 Para. 10
NO EXTERNAL AUDIBLE ALARM	Alarm light comes on but no audible alarm.	Open in alarm wiring. Loss of power to external alarm circuit.	Rewire. Check with voltmeter.	
		Faulty external alarm.	Repair external alarm.	
		Faulty circuit board Faulty Switch (Relay).	Refer to para. 10 (TROUBLE-SHOOTING CIRCUIT BOARD).	Section 4 Para. 10

PROBLEM	SYMPTOM(S)	PROBABLE CAUSE	CORRECTIVE ACTION	REFERENCE ITEM
NO RED ALARM LIGHT	Audible alarm functions when test pushbutton is depressed.	Faulty rocker switch.	Refer to para. 10 (TROUBLE-SHOOTING CIRCUIT BOARD).	Section 4 Para. 10
		LED has burned out.	Replace LED.	
ONE OR BOTH POWER LIGHTS INOPERATIVE	Detector receiving power and detects chlorine.	Faulty paddle switch.	Refer to para. 10 (TROUBLE-SHOOTING CIRCUIT BOARD).	Section 4 Para. 10
		LED(S) burned out.	Replace LED(S).	
ELECTROLYTE OVERFLOW FROM FILLER VENT ASSEMBLY	Increased drip rate.	Large atmospheric pressure and/or temperature changes in a period of hours.	Replace activated carbon cartridge.	
			Loosen and reinstall filler vent assembly, to relieve excess pressure.	

WARNING: CHLORINE IS A HAZARDOUS SUBSTANCE. THE WALLACE & TIERNAN CHLORINE DETECTOR IS A DEVICE TO INDICATE THE PRESENCE OF CHLORINE GAS IN AMBIENT AIR. TO MAINTAIN NORMAL OPERATION IT IS ESSENTIAL THAT FUNCTIONING OF THE DETECTOR BE CHECKED AND VERIFIED FREQUENTLY AS DESCRIBED IN THE PRECEDING PARAGRAPHS.

10 TROUBLESHOOTING CIRCUIT BOARD (See Dwg.'s 50.125.155.015, 50.125.150.005 and 50.125.150.010)

NOTE: The circuit board is not normally a repairable item and in most cases should be replaced with a new unit. However, if a competent Electronic Technician is available the following information will be useful.

Equipment needed: multimeter (such as Data Precision 245)

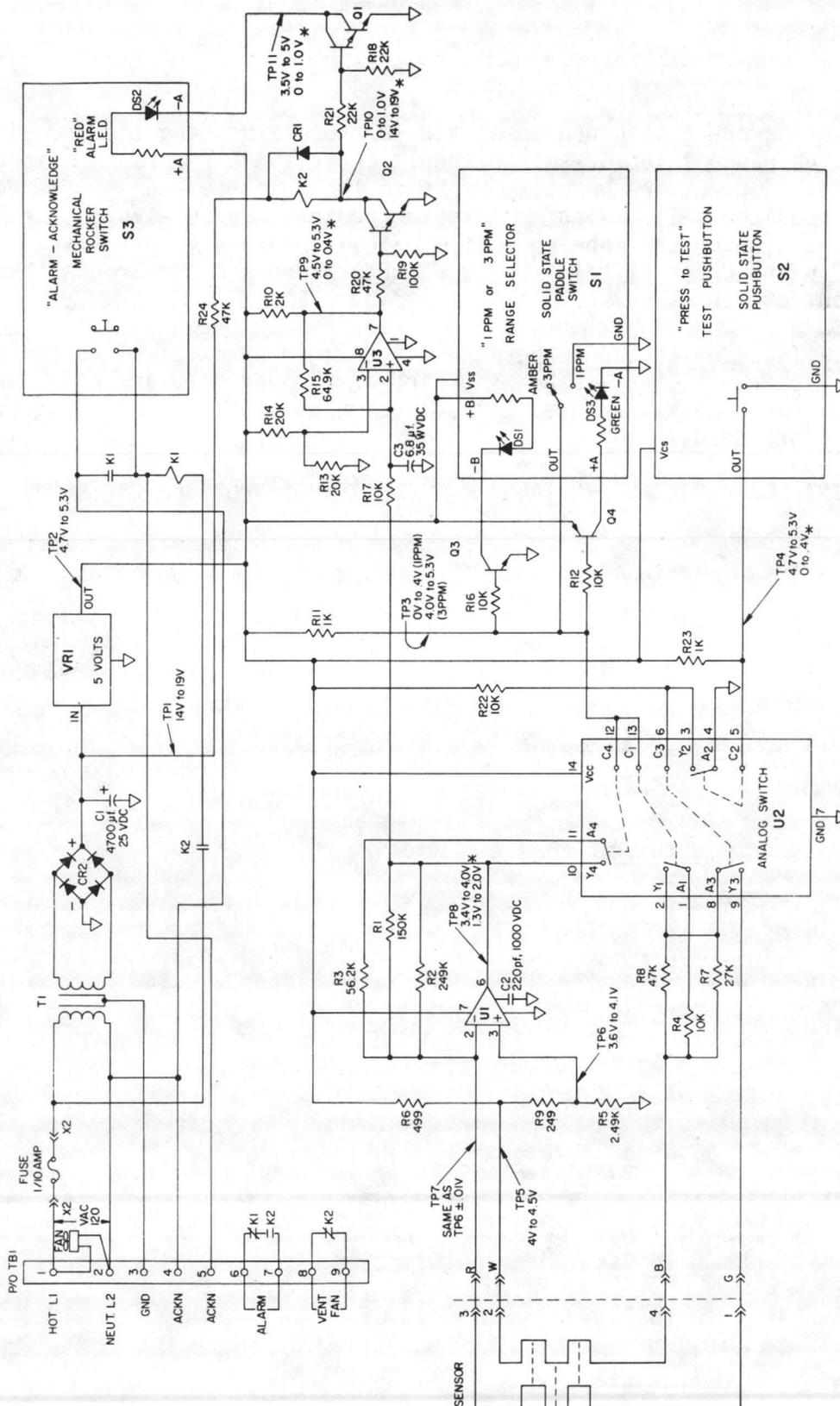
1. Shut off power to the circuit board.
2. Unplug the sensor (14) from the housing recepticle (16) (4 wire plug X1).
3. Check for continuity between terminals 1 and 3 and between 2 and 4 of sensor plug.
4. Check for an open between 1 and 2. (If Steps 3 and 4 are not satisfied, either the sensor (14) or the cable is defective).
5. Remove the housing (4).
6. Remove the circuit board and place it so that the component side is accessible.
7. Carefully check the entire circuit board for shorts and loose solder connections.
8. Reconnect the sensor to the housing (4).
9. Connect 120 Vac to terminals L1 and L2.

WARNING: THE CIRCUIT BOARD CONTAINS 120 VAC AND SHOULD NOT BE TOUCHED WHEN POWER IS CONNECTED. TO AVOID POSSIBLE SEVERE PERSONAL INJURY CAUSED BY ELECTRICAL SHOCK ALL MEASUREMENTS SHOULD BE TAKEN WITH A LONG PROBE TO AVOID TOUCHING THE EXPOSED RELAY CONTACTS OR OTHER ELECTRICALLY "HOT" TERMINALS.

The following chart is given as an aid to troubleshooting the circuit board. The range selector switch should be in the 1 PPM range (except as noted). Connect the negative probe of the voltmeter to COM (-side of filter capacitor C-1). With no chlorine present, measure voltage at the test points (which are labeled on the circuit board and on the schematic diagram in the order given). Voltages underlined are measured with the "test" button depressed.

CAUTION: This device can be permanently damaged by exposure to static charge. It is to be assembled or removed only after personnel, device, printed circuit board and work area are commonly grounded.

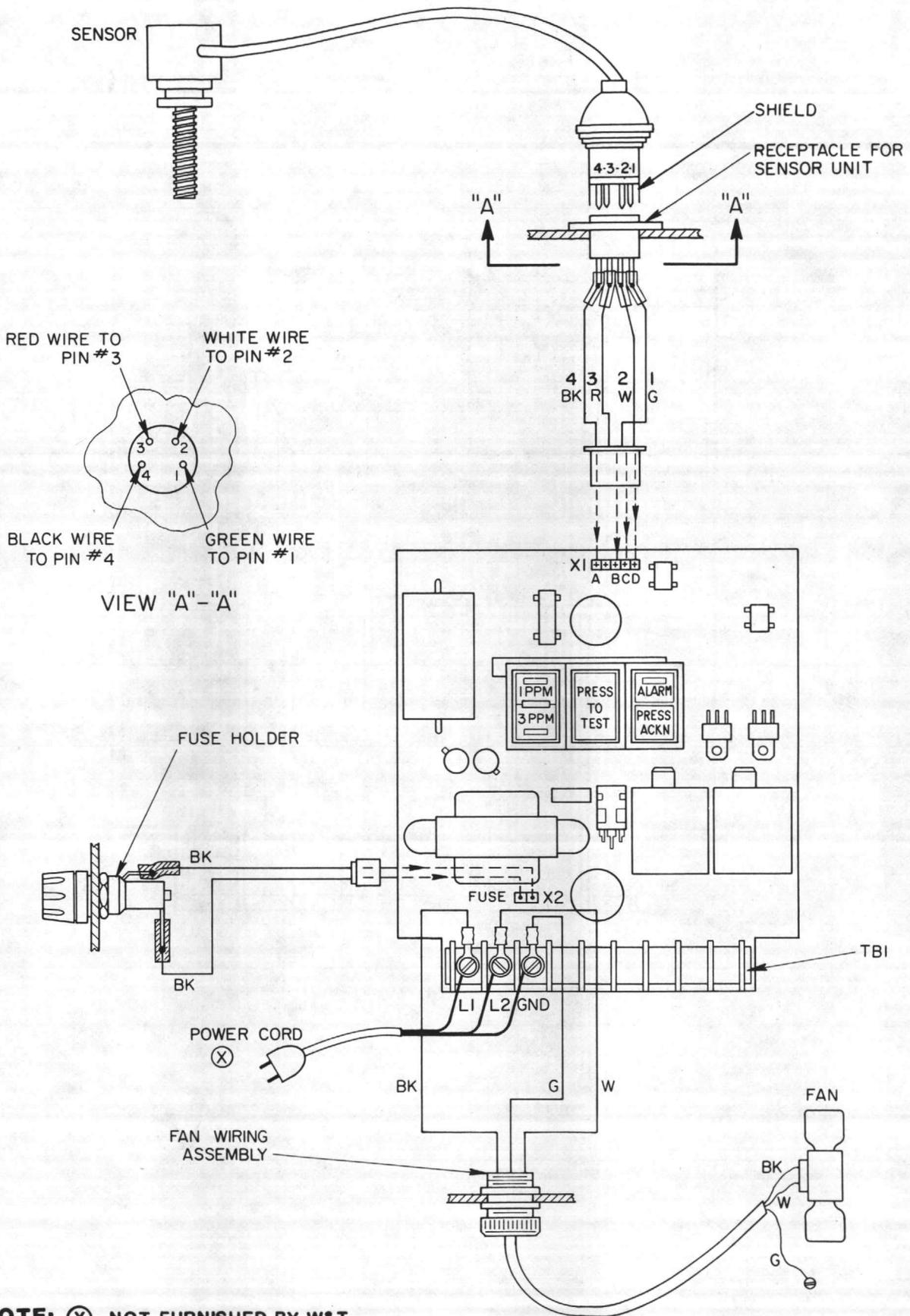
TEST POINT TP	CORRECT VOLTAGE VDC	IF NOT PROBABLE CAUSE(S)
1	14 to 19	Blown fuse; no power applied; VR2, C1, VR1 or T1
2	4.7 to 5.3	VR1
3	0 to .4 (3 PPM) 4.0 to 5.3	S1 U2 or S1
4	4.7 to 5.3	S2 or U2
	<u>0 to .4</u>	S2
5	4 to 4.5	U1
6	3.6 to 4.1	U1, R5, R6, R9
7	SAME AS TP6 \pm .01V	U1
8	3.4 to 4.0	U2, U1
	<u>1.3 to 2.0</u>	U2, U1
9	4.5 to 5.3	U3 or C3
	<u>0 to 0.4</u>	C3
10	0 to 1.0	Q2 or K2
	<u>14 to 19</u>	Q2 or K2
11	3.5 to 5.0	
	<u>0 to 1.0</u>	Q1 or S3



NOTE: ALL TP'S ARE VDC, RANGE-1PPM, NO CHLORINE PRESENT.
 * DENOTES WITH TEST BUTTON PRESSED. ALL RESISTORS ARE OHMS.
 RELAY CONTACTS SHOWN WITH POWER ON AND A NON - ALARM CONDITION.

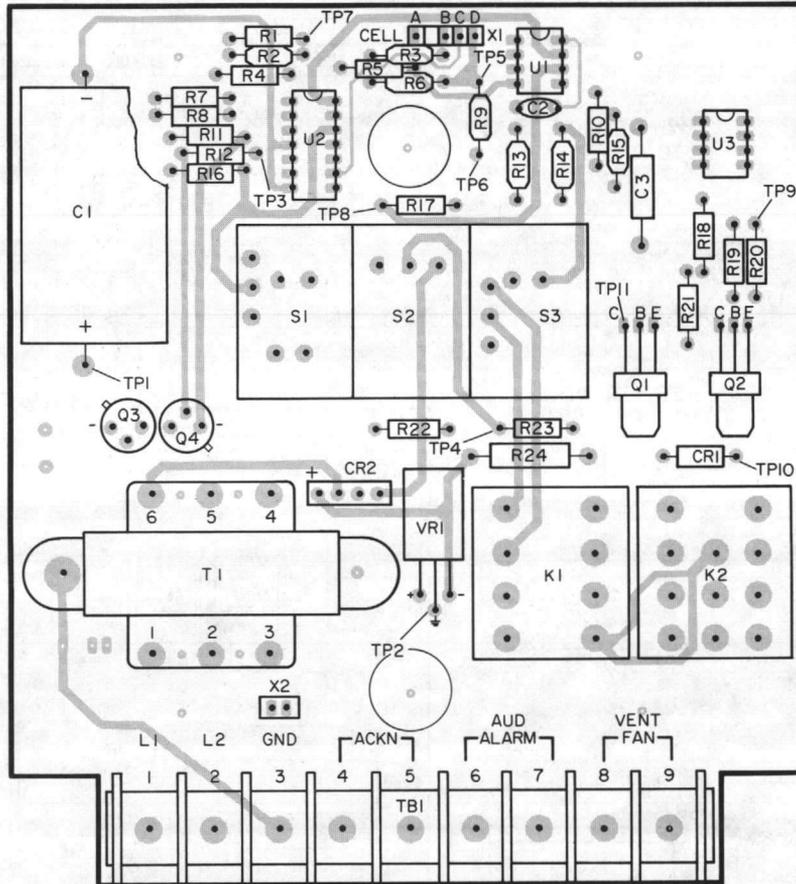
SERIES 50-125 CHLORINE DETECTOR - SCHEMATIC WIRING

50.125.155.015



NOTE: (X) NOT FURNISHED BY W&T.

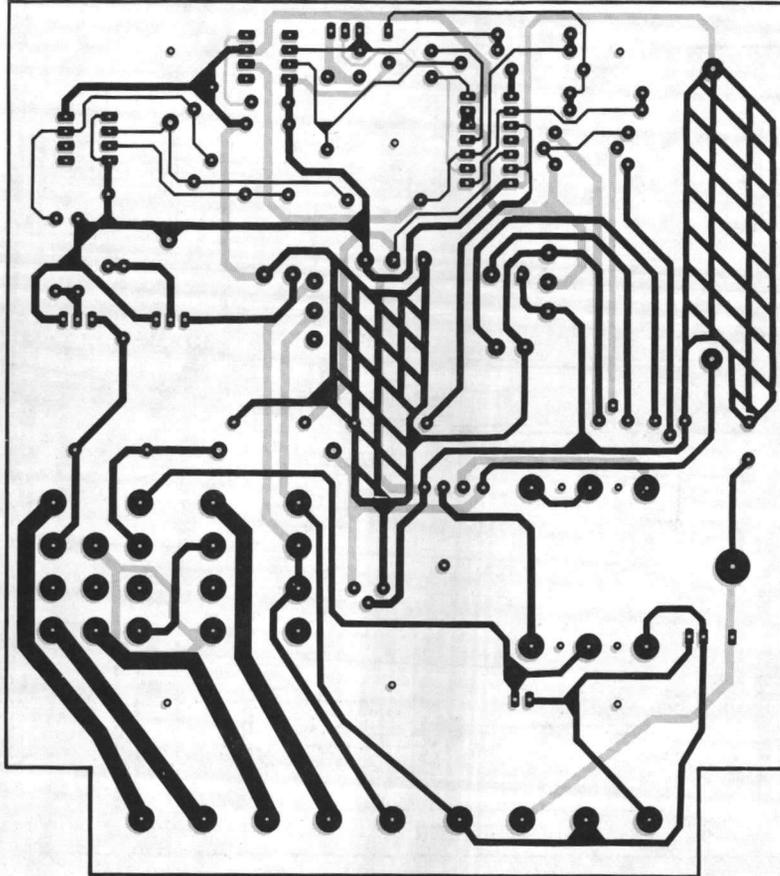
U 24754 CHLORINE DETECTOR - WIRING Wall Mounted



U25444 CIRCUIT BOARD — SERVICE
Component Side

50.125.150.005

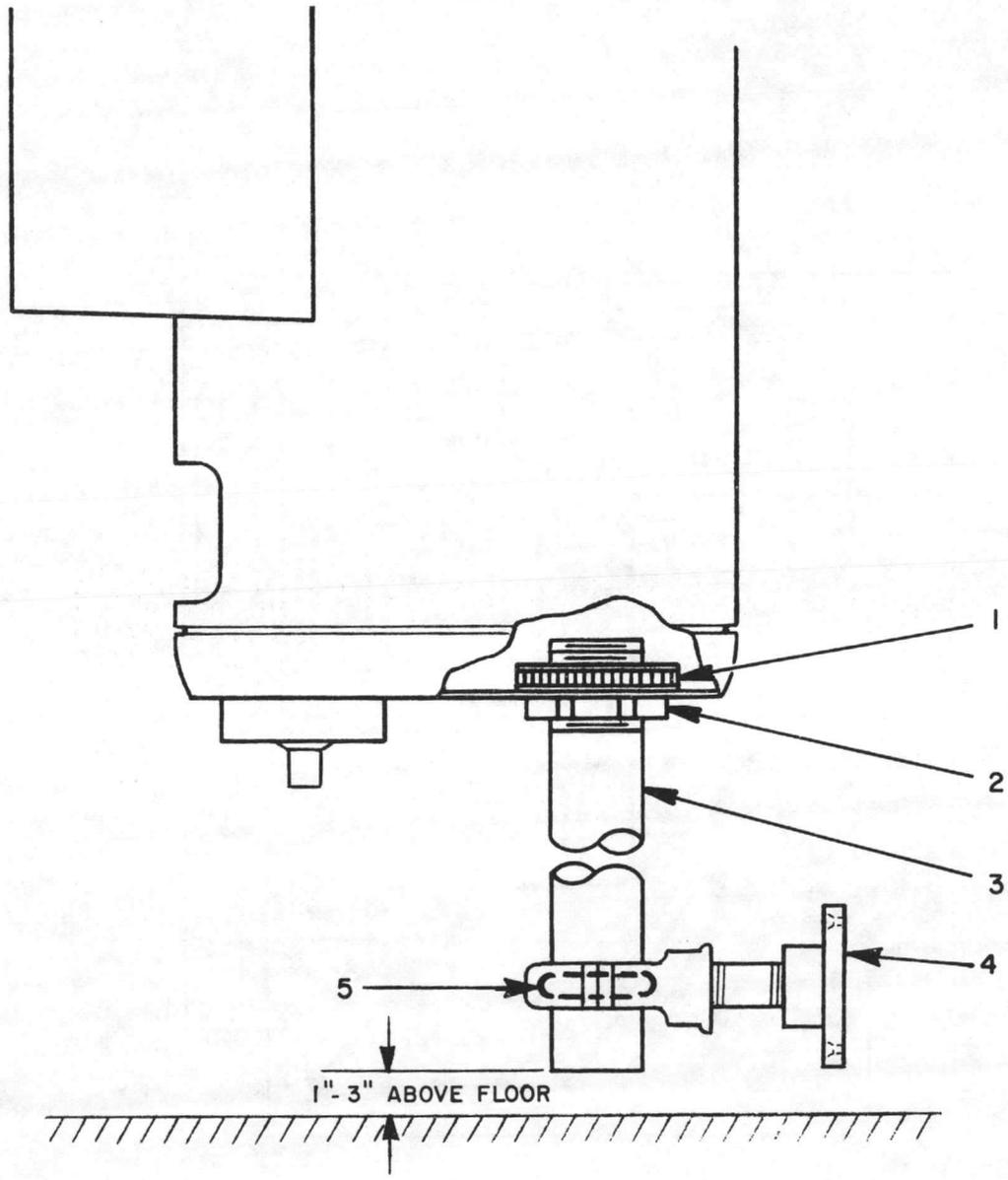
ISSUE 1 11-80



U25444 CIRCUIT BOARD — SERVICE
Conductor Side

50.125.150.010

ISSUE 0 2-80



KEY NO.	PART NO.	QTY.	DESCRIPTION
1	P 51120	1	1" NPT LOCKNUT (PVC)
2	P 48252	1	1" NPT LOCKNUT (STL.)
3	P 51269	1	NIPPLE 1" NPT X 48" LG.
4	U 2402	1	PIPE HANGER
5	RP704818	3-1/2"	TYGON TUBING

WHEN ORDERING MATERIAL ALWAYS SPECIFY MODEL AND SERIAL NUMBER OF APPARATUS

G 833 SUCTION INLET - SERVICE
 Used In Series 50-125 Chlorine Detector



50.125.151.030

ISSUE 4 7-84

WARNING

Chlorine is a hazardous substance and if breathed in high concentrations can cause death by suffocation. The purpose of this Detector is to sense and indicate the presence of chlorine gas. To maintain normal operation of this Detector you must observe the following precautions:

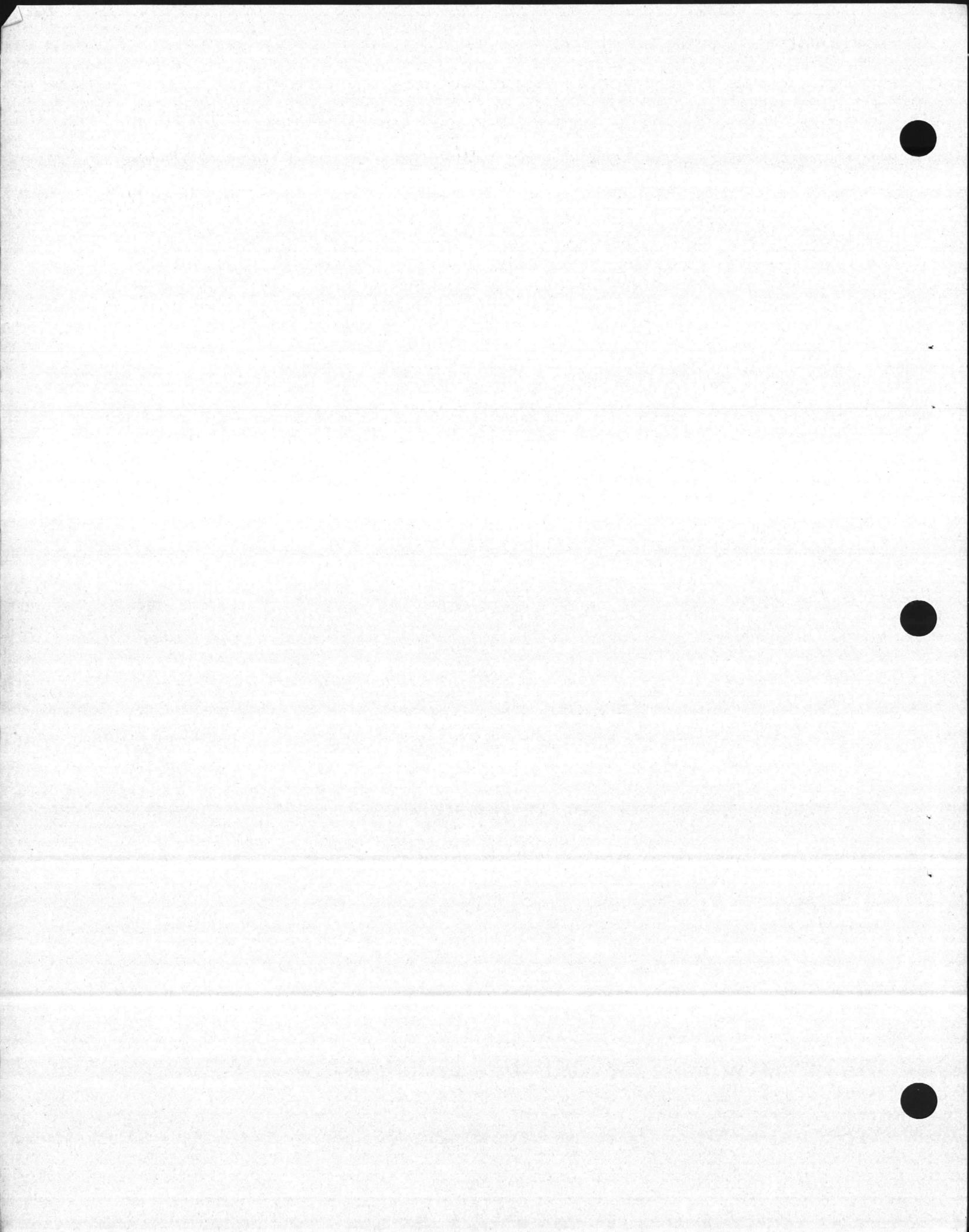
1. The operation of this Detector must be checked and verified frequently on a regular schedule.
2. If the Detector sensor is not coated with electrolyte fluid, the Detector will not function. To restore normal operation, fluid must be restored to the sensor.
3. To avoid injury from electrical shock, turn power OFF before servicing this equipment.
4. The W&T Instruction Book provided with this Detector furnishes complete and detailed instructions for its installation, operation and maintenance and must be referred to for that detailed information.
5. Operation and maintenance of this equipment must be restricted to trained, qualified personnel who are completely familiar with these instructions.

DO NOT REMOVE THIS LABEL

L2714

L2714





SECTION 5 - ILLUSTRATIONS

TITLE

DWG. NO.

Parts-U24754 Chlorine Detector

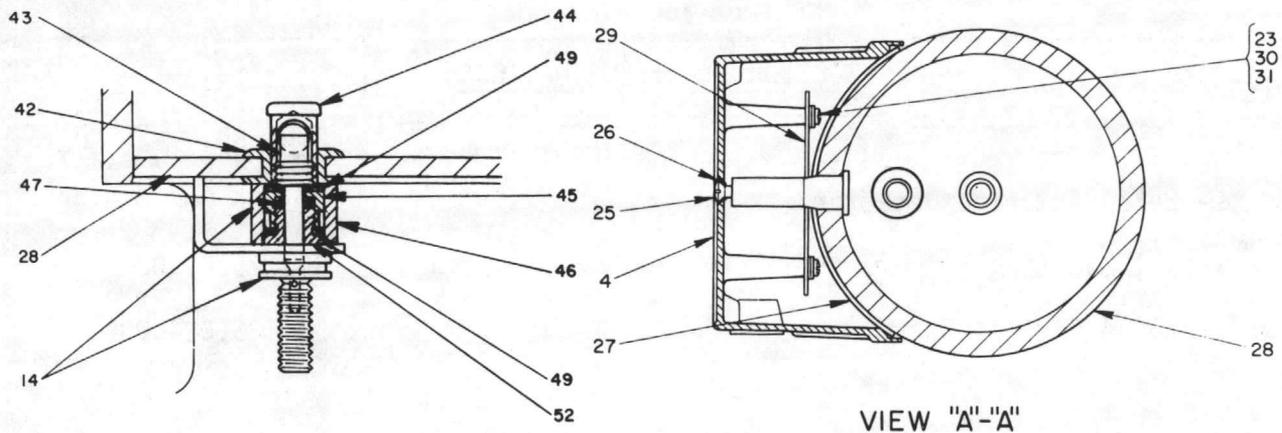
50.125.000.023A&B

Parts-Wall Mounting Components

50.125.03.001

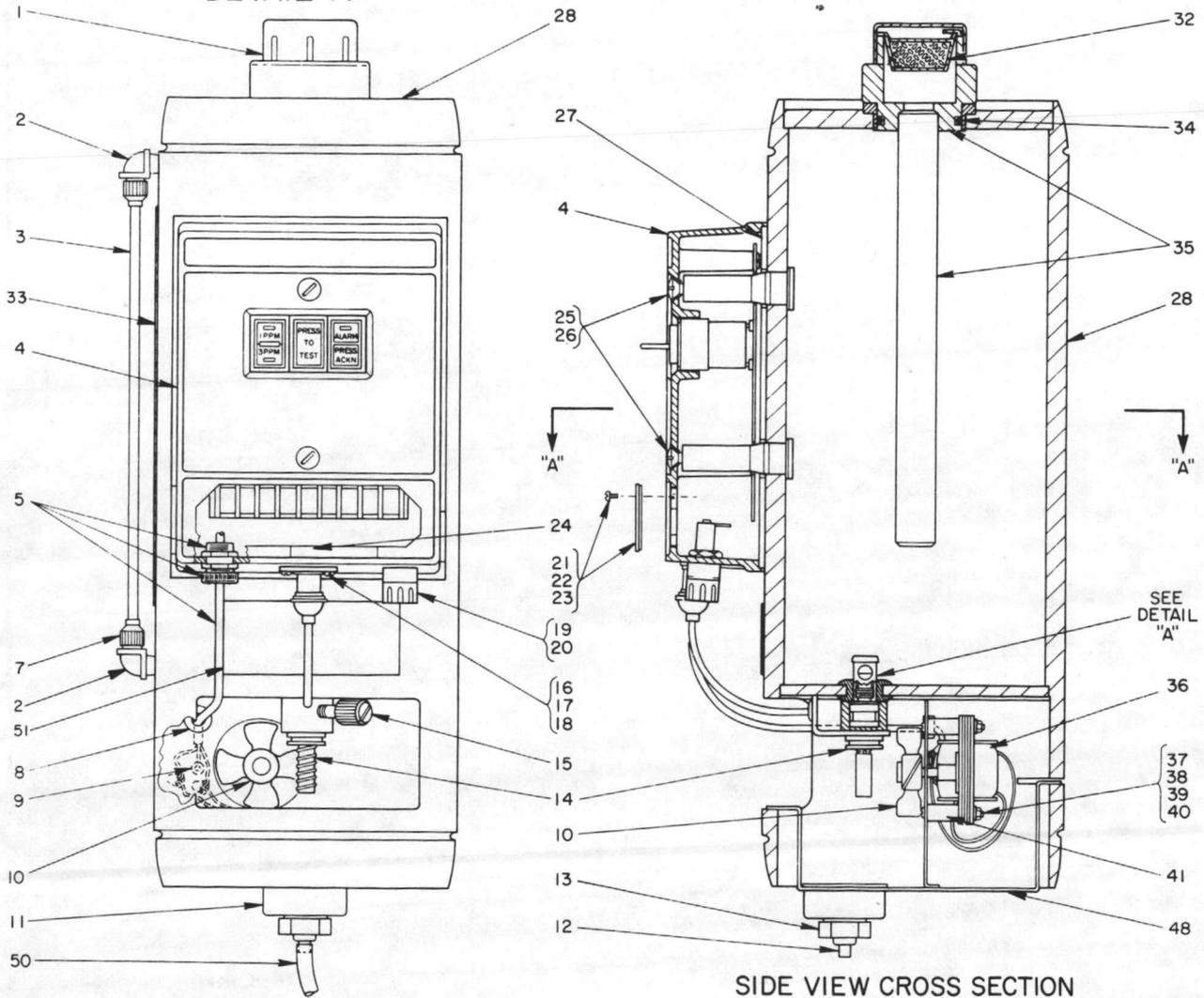
Parts-U25444 Circuit Board

50.125.004.005



VIEW "A"-"A"

DETAIL "A"



FRONT VIEW

SIDE VIEW CROSS SECTION

NOTE: FOR PARTS LIST SEE DWG. 50.125.000.023B.

WHEN ORDERING MATERIAL ALWAYS SPECIFY MODEL AND SERIAL NUMBER OF APPARATUS

U 24754 CHLORINE DETECTOR - PARTS Wall Mounted

WALLACE & TIERNAN
PENWALT

50.125.000.023A

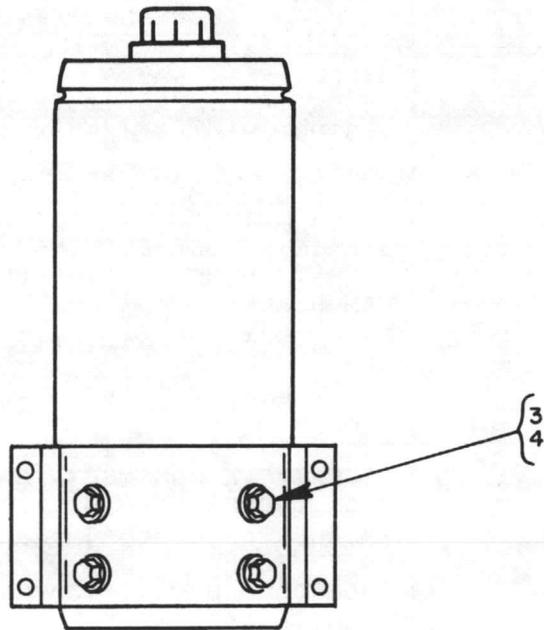
ISSUE 8 8-85

KEY NO.	PART NO.	QTY.	DESCRIPTION
1	P 48392	1	FILLER VENT CAP
2	PXB 39235	2	ELBOW (POLYMER) 1/2" UNION
3	RP52 4464	9-3/16"	TUBING (VINYL) 1/4" X 1/16" WALL
4	U 26836	1	HOUSING
5	U 26891	1	FAN WIRING ASSEMBLY
7	PXC 39234	2	UNION NUT
8	P 43471	1	STRAIN RELIEF BUSHING
9	P 38969	1	SELF-TAPPING SCREW (PAN HD.,S.S.) #8-32 X 1/2" LG.
10	P 51165	1	FAN BLADE
11	P 51112	1	DRIP TRAY
12	P 51117	1	DRAIN NIPPLE
13	P 51116	1	HEX. DRAIN NUT (PVC) 1"
14	U 25279	1	SENSOR
15	P 52545	1	LOCKING SCREW 1-1/2" LG.
16	U 25583	1	RECEPTACLE ASSEMBLY
17	P 46351	2	MACH. SCREW (PAN HD.,BRASS) #4-40 X 5/16" LG.
18	P 17244	2	#4 LOCKWASHER (BRONZE)
19	U 14557	1	FUSE HOLDER
20	P 53073	1	FUSE (SLO-BLO) 1/10 AMP., 250V.
21	P 53023	1	IDENTIFICATION PLATE
22	P 53062	1	IDENTIFICATION PLATE GASKET
23	P 46650	8	MACH. SCREW (PAN HD.,S.S.) #4-40 X 1/4" LG.
24	L 2257	1	WARNING LABEL
25	PE 9616	2	MACH. SCREW (OV.HD.,BRASS) 1/4"-20 X 1" LG.
26	P 48672	2	GASKET
27	RK53 1104	2'6"	SPONGE RUBBER STRIP
28	U 26271	1	RESERVOIR
29	U 25444	1	CIRCUIT BOARD (SEE DWG. 50.126.004.005)
30	P 45194	4	#4 LOCKWASHER (S.S.)
31	PN 5662	4	#4 WASHER (BRASS)
32	U 26190	1	CHARCOAL CARTRIDGE
33	L 2441	1	LABEL
34	P 46620	1	O-RING (HYPALON) 1-5/8" ID X 1-7/8" OD UNIFORM SIZE NO. 223
35	U 26269	1	VENT ASSEMBLY
36	U 24424	1	MOTOR 3M H.P., 115V., 50/60 HZ
37	P 44241	2	MACH. SCREW (RD.HD.,S.S.) #6-32 X 1-1/2" LG.
38	P 19865	2	#6 WASHER (S.S.)
39	P 43816	2	#6 LOCKWASHER (S.S.)
40	P 19822	2	HEX. NUT (S.S.) #6-32
41	P 51164	2	SPACER
42	P 52549	1	GROMMET
43	P 54515	1	FILTER
44	P 52546	1	PROBE SLEEVE
45	P 56636	1	ADAPTER SLEEVE
46	P 54326	1	GLASS ORIFICE
47	PXA 25900	1	O-RING (VITON) 1/4" ID X 3/8" OD UNIFORM SIZE NO. 010
48	U 25564	1	BOTTOM TRAY
49	P 54654	2	5/8" WASHER (TFE)
50	RP52 4464	4'-0"	TUBING 1/4" ID X 3/8" OD (VINYL)
51	L 2714	1	WARNING LABEL
52	P 56635	1	LOWER SLEEVE

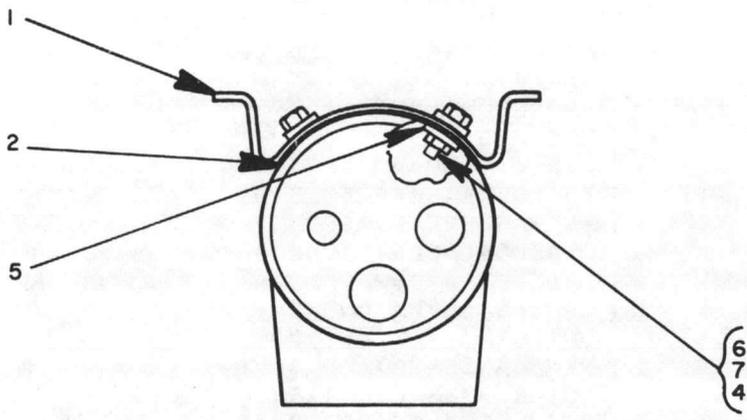
WHEN ORDERING MATERIAL ALWAYS SPECIFY MODEL AND SERIAL NUMBER OF APPARATUS

U 24754 CHLORINE DETECTOR - PARTS LIST

Wall Mounted



REAR VIEW



BOTTOM VIEW

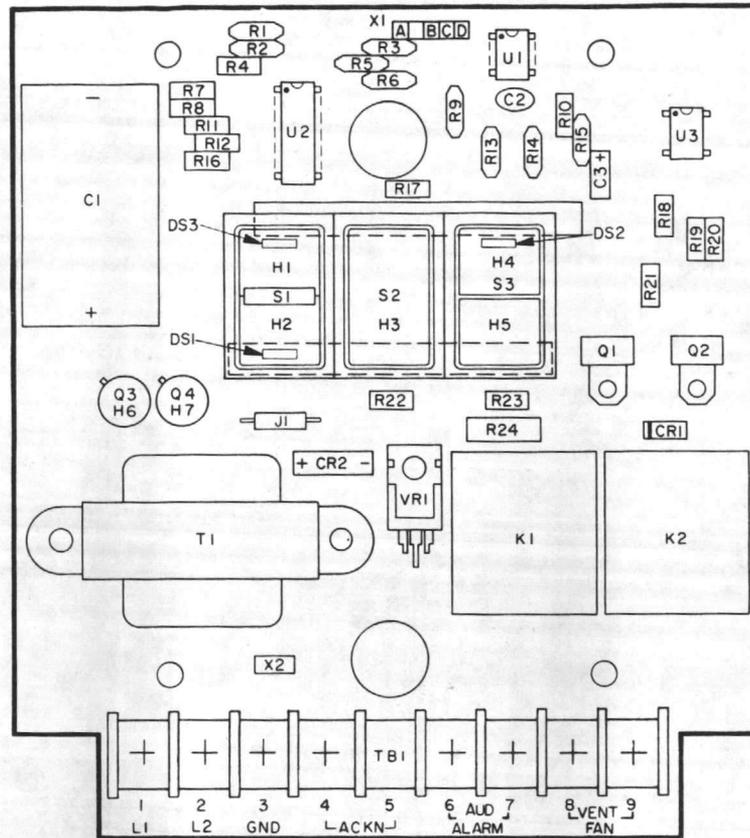
KEY NO.	PART NO.	QTY.	DESCRIPTION
1	P 53143	1	BRACKET
2	P 53120	1	GASKET
3	P 29770	4	HEX. BOLT (S.S.) 1/4"-20X1" LG.
4	P 19888	8	1/4" WASHER (S.S.)
5	P 50177	4	RUBBER WASHER
6	P 14635	4	1/4" LOCKWASHER (S.S.)
7	P 19835	4	HEX. NUT (S.S.) 1/4"-20

WHEN ORDERING MATERIAL ALWAYS SPECIFY MODEL AND SERIAL NUMBER OF APPARATUS

WALL MOUNTING COMPONENTS – PARTS
For Series 50-125 Chlorine Detector



50.125.03.001
ISSUE B 11-80

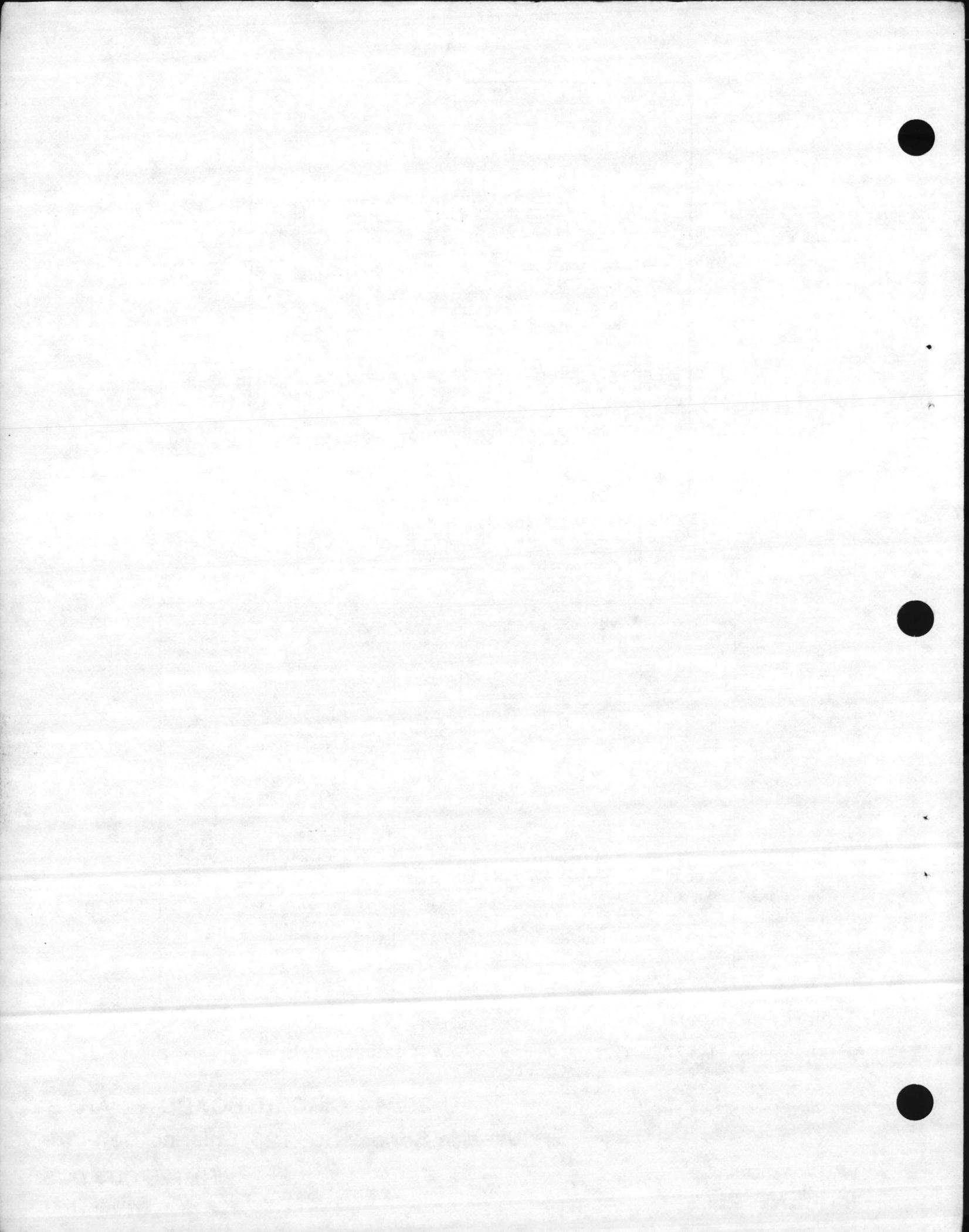


SYMBOL	PART NO.	DESCRIPTION	SYMBOL	PART NO.	DESCRIPTION
C1	P 52945	CAPACITOR 4700 μ F, 25 VDC	R7	P 48865	RESISTOR (27K, $\pm 5\%$)
C2	P 48112	CAPACITOR 220 pF, 1000 VDC	R8, R20	P 46667	RESISTOR (47K, $\pm 5\%$)
C3	P 44280	CAPACITOR 6.8 μ F, 35 WDC	R9	P 52954	RESISTOR (249 Ω , $\pm 1\%$)
CR1	P 46757	DIODE #1N4001	R10	P 52734	RESISTOR (2K, $\pm 5\%$)
CR2	P 44417	RECTIFIER BFW, 400V, IRC #N53062A	R11, R23	P 46665	RESISTOR (1K, $\pm 5\%$)
DS1	U 25846	AMBER LED	R13, R14	P 52951	RESISTOR (20K, $\pm 1\%$)
DS2	U 25847	RED LED	R15	P 52950	RESISTOR (64.9K, $\pm 1\%$)
DS3	U 25848	GREEN LED	R17	P 52949	RESISTOR (10K, $\pm 1\%$)
H1	P 52968	COVER	R18, R21	P 46117	RESISTOR (22K, $\pm 5\%$)
H2	P 52969	COVER	R19	P 46114	RESISTOR (100K, $\pm 5\%$)
H3	P 52973	BITTON	R24	P 50255	RESISTOR (1W, 47 Ω , $\pm 5\%$)
H4	P 52970	OPERATOR	S1	P 52948	PADDLE SWITCH (1 PPM & 3 PPM)
H5	P 52971	OPERATOR	S2	P 52946	PUSH-BUTTON SWITCH (TEST)
H6, H7	P 43367	CAN SEAT, 1T0 5	S3	P 52947	ROCKER SWITCH (ALARM & ACKNOWLEDGE)
K1	P 52957	RELAY, 2 P.D.T., 115 VAC	T1	P 52611	TRANSFORMER
K2	P 52958	RELAY, 3 P.D.T., 12 VAC	TB1	P 52944	BARRIER STRIP
Q1, Q2	P 52233	TRANSISTOR, MOTOROLA #MPS-145	U1	P 50503	INTERGRATED CIRCUIT LM 308AN
Q3	U 20661	TRANSISTOR, RCA #2N-2270	U2	P 52237	INTERGRATED CIRCUIT TP 4016AN
Q4	P 44612	TRANSISTOR, RCA #2N-4037	U3	P 52979	INTERGRATED CIRCUIT LM 311
R1	P 52953	RESISTOR (150K, $\pm 1\%$)	VR1	P 50630	VOLTAGE REGULATOR MC7805C
R2	P 52955	RESISTOR (249K, $\pm 1\%$)	X1	U 25525	HEADER, 5 PIN
R3	P 52975	RESISTOR (56.2K, $\pm 1\%$)	X2	U 24691	HEADER, 2 PIN
R4, 12, 16, 22	P 46666	RESISTOR (10K, $\pm 5\%$)			
R5	P 52956	RESISTOR (2.49K, $\pm 1\%$)			
R6	P 52952	RESISTOR (499 Ω , $\pm 1\%$)			

NOTE: ALL RESISTORS ARE 1/4 WATT, UNLESS OTHERWISE SPECIFIED.

U 2544 CIRCUIT BOARD - PARTS

Used In Series 50-125 Chlorine Detector



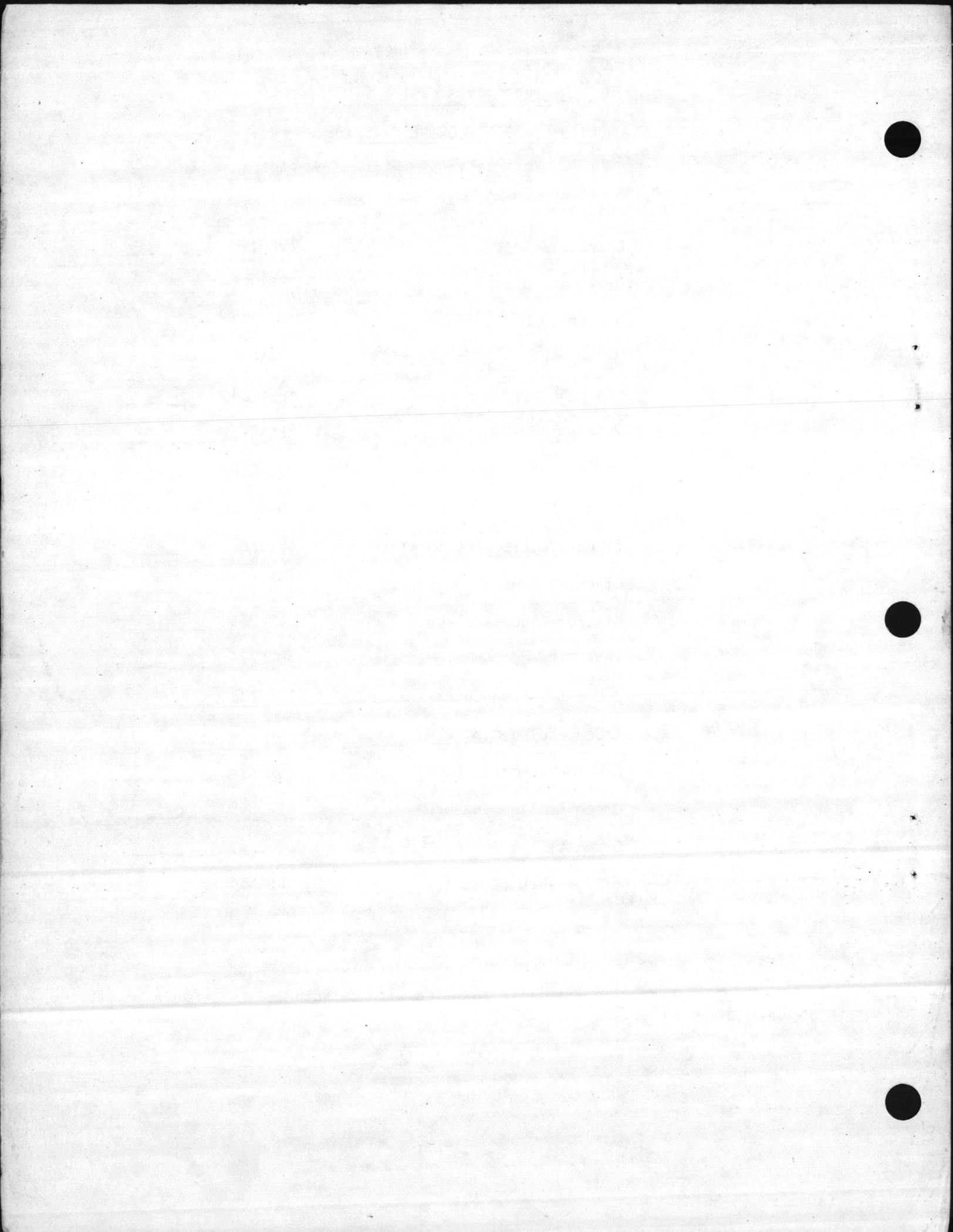


SPARE PARTS LIST

SERIES 50-125 CHLORINE DETECTOR

<u>QUANTITY</u>	<u>DESCRIPTION</u>	<u>PART NO.</u>
1	Fuse Slo-Blo 1/10 Amp	*P53073 _____
1	Charcoal Cartridge	*U26190 _____
1	Orifice - glass	*P54326 _____
2	O-ring #010 - orifice	PXA25900 _____
1	O-ring #223 - vent assembly	P46620 _____
1 pkg.	Cleaning Wire	*P26488 _____
2	Filter	*P54515 _____
1 bottle (1 gal)	Electrolyte Concentrate	U25660 _____
1	Wash Bottle	*U24757 _____
1 bottle	Electrode Cleaning Solution	*UXB13765 _____
1	Cleaning Brush	*P45539 _____
1	Kit For Floor Suction	**G833 _____
1	Test Kit	**U25734 _____
1	0.5 ppm Switch Cover	*P53331 _____
1	Amber Replacement LED	U25846 _____
1	Red Replacement LED	U25847 _____
1	Green Replacement LED	U25848 _____
1	Grommet	P52549 _____
1	5/8" Washer (TFE)	P54654 _____

*Part of G907 accessories initially supplied with detector.
**Optional accessories.



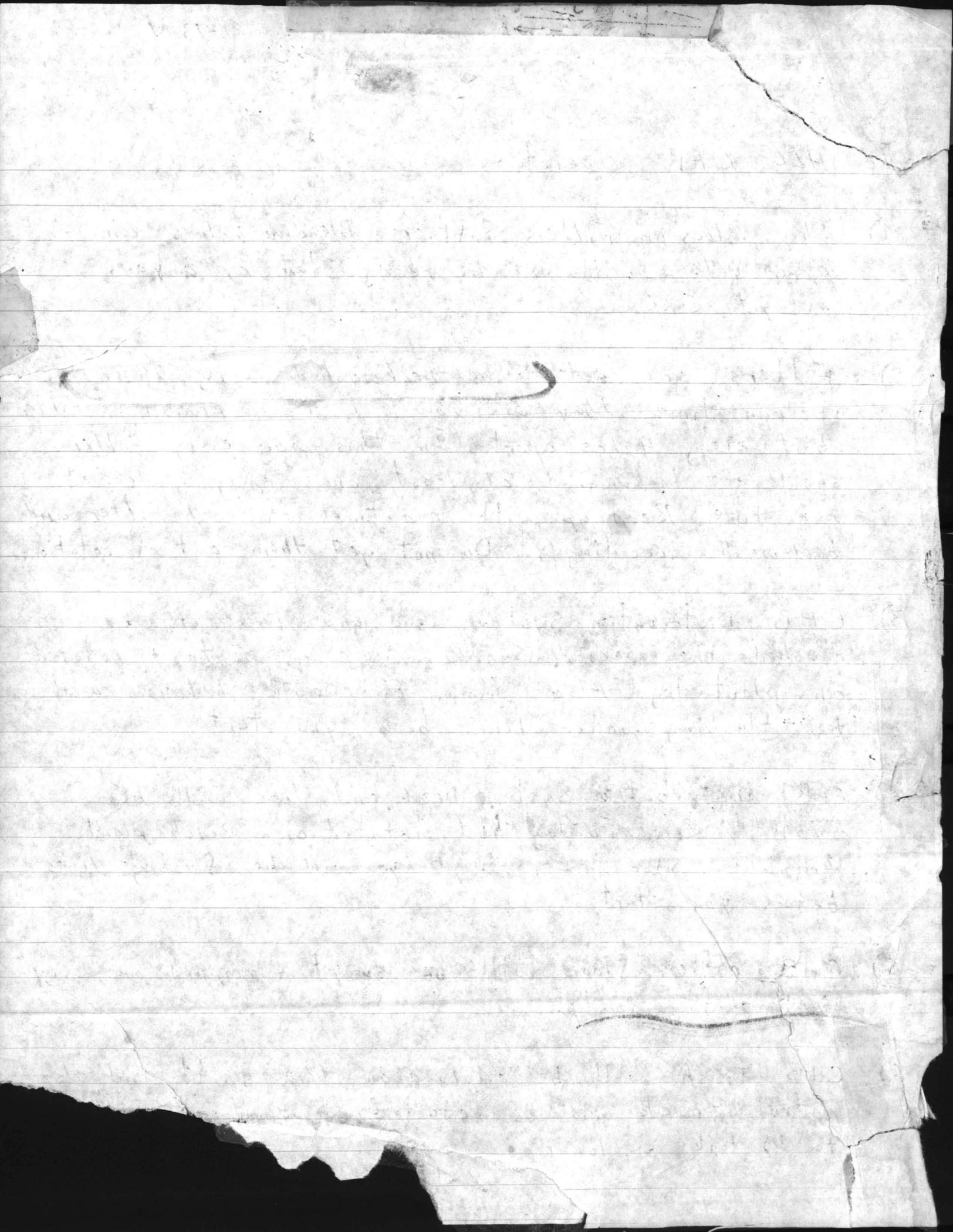
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To ALL CHB Operators

- 1) The Valves on Filters, Softners, Blending Valves, Line + pump values will not be readjusted by anyone except ORC.
- 2) Filters are ~~set~~ to be backwashed every 24 hrs of run time. They are now set to backwash 1 Filter about every 4 hrs apart. In this way every Filter should get backwashed at least once every 24 hrs. of run time. Keep up with run times of each Filter and backwash accordingly. Do not get them out of rotation.
- 3) CHB Distribution System Dead end lines will be flushed the Second Sunday of every month + notated on plant log. Also inform Fire Dept. that you will be flushing water lines before you start.
- 4) OB Distribution System Dead end line will be flushed every Sunday and notated on Beach plant Log. Also inform Fire Dept. you will be flushing lines before you start.
- 5) CHB office floor will be swept + mopped on every 12/8 shift daily.
- 6) CHB Trash will be emptied on 4/12 shift and also patrol truck will be refueled on 4/12 shift to 1/2 tank or lower.

526-9836

→ S. J.





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WALLACE & TIERNAN DIVISION
PENNWALT CORPORATION
25 MAIN STREET
BELLEVILLE, NEW JERSEY 07109

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EQUIPMENT ■ CHEMICALS
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